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THIRTEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

OHIO STATE UNIVERSITY,

TO THE

Governor of the State of Ohio,

FOR THE YEAR 1883.

COLUMBUS:
G. J. BRAND & CO., STATE PRINTERS.
1884.

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OHIO STATE UNIVERSITY.

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OHIO STATE UNIVERSITY.

1883-1884.

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Librarian.

COLUMBUS, OHIO, *November* 15, 1883.

To His Excellency, Governor Charles Foster:

SIR: I have the honor to transmit herewith the Thirteenth Annual Report of the Board of Trustees of the Ohio State University.

Very respectfully,
Your obedient servant,
ALBERT ALLEN,
Secretary of Board.

REPORT OF TRUSTEES.

Governor Charles Foster:

SIR: In compliance with the requirements of law, the Board of Trustees respectfully submit the Thirteenth Annual Report of the Ohio State University.

The accompanying reports of the President and other members of the Faculty are brought down to the close of the last collegiate year, it having been deemed best and so ordered at the date of the last report. By such an orderly and natural arrangement an unbroken and consecutive report is shown of the work in the various departments running through the first, second and third terms of one full collegiate year, instead of sections of two years, separated by an interval of time between the conclusion of one session and the beginning of another.

The report of the Treasurer, so far as it relates to the statement of receipts and disbursements, is made to conform, as usual, to the fiscal year of the State. The actual computation of interest on the "irreducible fund" is made as required by law, for the set period of January 1st and July 1st of each year. In order, however, that the financial exhibit may appear more intelligible the accumulations of interest are shown for the fiscal periods (May 15th and November 15th) of each year.

Since the date of the last report the General Assembly of the State have made the following needed appropriations for the purposes named, viz.:

For Trustees' expenses	$350 00
Ordinary repairs	1,500 00
Horticultural and Agricultural Hall	15,000 00
Steam-heating apparatus and completing Laboratory building	5,000 00

Although the new Chemical Laboratory building was completed nearly a year ago, no use could be made of it until some adequate appropriation for purposes of heating, etc., had been made. As soon, therefore, as the above appropriation was made, steps were taken looking to the consummation of the work. The State law governing the expenditure of this sum required the work to be done under regular proposals detailed plans, specifications and estimates. As more than thirty of these drawings were necessary to outline definitely the forms and locations of things involved in the detail work, much time and care were employed in their preparation by Prof. S. W. Robinson, who had been engaged to superintend the construction. Following the acceptance of these, and the usual legal publications, a meeting of the Board was held to award the contract. Only two proposals were received, and one of these for a *part* of the work only. Although every possible curtailment of the extent of the work had been made, compatible with the object sought, contractors generally seemed to regard the sum appropriated as inadequate to meet the cost of the work required. The responsibility of the parties being assured, the contract was let to Messrs. Lanphear & Lorenz, the only bidders on the whole, for the sum of $4,743.64. The work was pressed with great rapidity and completed before the opening of the Fall term. The chemicals and apparatus, belonging to the departments of Chemistry and Mining and Metallurgy, have been transferred from the old building and located in their new quarters.

For the erection of the Horticultural and Agricultural Hall only one bid for the work as a whole was received. This not being within the limit of the appropriation was necessarily rejected. Numerous bids were received for separate parts of the building. The lowest of these having been accepted, the awards were as follows:

For all excavating, to Walter Collins	$200 00
stone masonry, to Walter Collins	1,150 00
cut stone, to Wm. Fish & Son	1,175 00
brick work, to Robert Wood	2,179 00
plastering, to Frederick Weber	260 00
tin, iron and slate, to Robert Wood	590 00
painting, glass and glazing, to Lewis Fink	653 00
carpenter work, to C. B. Hall	3,872 00
green-house (frame and glass), to Lord Manufacturing Co	2,743 00
steam or hot-water heating, to Andrew Schwarz	685 00
gas-pipe (285 feet), to F. A. Wilcox	38 00
Aggregating in the whole	$14,540 00
Which, with Architect's fees, and bills for advertising, amounts to	14,980 33

The Hall is located on an elevated piece of ground, in a southeasterly direction from the main building.

The building is a tasty, two-story brick and stone structure. The main portion is 40x50 feet, to which is attached a wing 25 feet square. The first floor contains a lecture-room, capable of seating 150 students, two small laboratories, a seed-room, and a private office for the Professor.

The second story is to be devoted to general laboratory and museum purposes. The attic furnishes a very useful store-room. The basement is 8 feet high, well lighted, and frost proof. It is divided into several apartments for the storage of fruits and vegetables, for the preservation of stocks, root grafts, etc., for the nursery, and for potting-rooms for the green house. A portion will be used for grafting and various other horticultural operations. Connected with the wing of the main building is a neat and well constructed green-house. This is built in the most approved modern style. The foundation walls are of brick and stone, and the frame of wrought-iron. The green-house is divided into two parts—a conservatory, 25x30 feet, for keeping a collection of useful and ornamental plants for study, and a propogating-house, 25x40 feet, for raising plants for the College grounds and gardens, and for performing various experiments in Horticulture and Botany.

This building and the new Laboratory, besides admitting of increased facilities for higher training, will serve to furnish all the room required to relieve the overcrowded class-rooms in the main building, and in the event of fire will greatly diminish any casualty likely to occur. A better distribution of lecture-rooms, and a more comfortable provision for the lady students were also among the good results gained.

To secure a more reliable supply of water to the boiler-rooms and laboratories, and to guard against deficiency of the same in the event of fire occurring in the buildings, a contract was entered into with the Columbus Water Works Company for the laying of pipes from High street to a water-plug, located at a central point between the buildings, the Board agreeing to pay twenty-five per cent. of the cost of the same, and guaranteeing to the said company the right at all times of access to the grounds, for purposes of repair. Connections have been made between these mains and the Chemical Laboratory, Horticulural Hall and main building. Besides the attachment for the hose of the fire department on the central water-plug, others have been made on each floor of the main building, to a line of pipe, reaching from bottom to top, for hose, belonging to the University, and kept on reels conveniently located. It is hoped that arrangements can be made to organize a limited fire brigade on the premises to act in any emergency that may arise.

Since the completion of the three new residences they have been rented and are now occupied by Professors McFarland, Tuttle and Mendenhall. The aggregate cost of these buildings was $16,646.26, and by agreement the parties just named are to pay for them an annual rental of $1,200. This arrangement secures 7.20 per cent. on the investment, in addition to all the advantages resulting to the University from the immediate presence of the Professors at their place of work.

This expenditure was authorized by an act passed by the General Assembly of Ohio, April, 1882, from the proceeds of the sales of land in the Virginia Military District remaining uncertified into the Treasury of the State. The report of the Treasurer shows that to

November 15, 1878,	the total receipts were	$18,859 37,	and the disbursements	$10,988 33
Nov. 15, 1879—	Additions to the receipts "	5,280 00,	" "	1,127 86
" 1880	" " "	7,285 08,	" "	2,228 65
" 1881	" " "	7,363 40,	" "	8,991 48
" 1882	" " "	9,870 16,	" "	847 84
" 1883	" " "	6,282 29,	" "	722 79
		$54,440 30		$19,851 85

Aggregating in receipts, $54,440.30, and disbursements, $19,851.85, leaving a net balance of $34,588.45. The large disbursement of 1881 was occasioned by the payment of one claim in the Franklin County Common Pleas Court of $2,284.33. Of the net balance stated above, the sum of $13,665.85 has been certified into the treasury, to the credit of the general endowment fund, and $16,646.26 paid on the residences. The balance in favor of this account, now, as shown by the report of the Treasurer, is $4,276.35. The face value of Notes, good and bad, remaining unpaid, amounts to $15,959.79.

The management of this trust has been under four different Boards since the organization of the Institution. The initiative in the adoption of plans relating to the discovery, survey, platting, appraisement and sale of these "undiscovered and unsurveyed lands in the Virginia Military District" was taken by the first Board, which appointed the Hon. James M. Trimble to take charge of the matter, "with power to procure surveys and plats to be made, and to do all things necessary to bring said lands into market, and to make sale of these lands, to bring suits, adjust claims and employ suitable surveyors, clerks and counsel." Appropriations for these purposes were made, and quite a large body of these lands had been discovered and surveyed up to 1877, when the Board seemed to grow weary of delay, and "declined to make any further advances or incur any further expense in their reclamation, and expressed a strong desire that this whole matter should be brought to a speedy conclusion, and the final report thereon be submitted to the Board."

In view of all that had been done, and the fact that the most saleable of these lands had already been disposed of, the present Board, in 1878, deemed it best to adhere to the methods adopted by former boards, excepting in the matter of employing a single agent to manage the affairs of discovery, sale, etc., and thus avoid all complications likely to arise where two or more were engaged. Capt. Charles A. Barton, of Portsmouth, a practical surveyor, acquainted with the character and location of these lands, and who had been employed from the beginning of this work, was continued as sole agent, at a salary of $60 per month. As his work in the field, making of plats, collections, keeping records, attention to suits, etc., has decreased, his salary has been reduced accordingly. The prices at which these lands were appraised and sold may seem low, but the great length of time they continued upon the market without buyers at the appraisement of three sworn disinterested land holders, shows that they were not regarded as bargains by either speculators or actual settlers. The market had, also, been flooded with land scrip, sold as low as 53 cents per acre.

The Board does not expect the discovery of any considerable quantity in the future. The field seems nearly exhausted, and after the collection of notes now in the hands of the Treasurer, the whole matter will be practically ended.

The appropriation for "Ordinary Repairs" has been used for purposes of preservation and repair. The floors and walls of the old Chemical Laboratory have been repaired, and the main halls and a number of the class-rooms have been thoroughly renovated by kalsomining and painting. The farm-house and large barn, and the two residences on the southern part of the farm, with their out-buildings, have also been well painted and cared for from this fund. The timely attention which the use of this appropriation allows to be given in repairing slight injuries, and preserving from decay exposed portions of the buildings, saves thousands of dollars of loss likely to result from delay and neglect.

The general course of instruction in the University is fully set forth in another part of this report, under the head of "Departments and Range of Instruction." Connected therewith will be found also the names of those having in charge the different courses. It will be seen that the educational corps is made up of 13 regular Professors, 1 Assistant Professor, 1 Instructor and 4 Assistants. The composition of the Faculty is exceptionally strong. Under the direction of such skilled teachers, supported in their work with abundant facilities for research and illustration, the most accurate and liberal instruction is possible in every department.

The growth in some of these departments has necessitated a division of labor. Three years ago the department of Physics and Mechanics had to be divided, and special professors (Mendenhall and Robinson) assigned respectively to each. In the last report the President, speaking of the rapid growth in other departments, says:

"The classes are divided as much as possible. but it is a physical impossibility for the ablest teacher to instruct thoroughly in languages or in mathematics classes including from 40 to 60 students.

"It becomes my duty, therefore, to call the attention of your honorable body to the necessity which the constant increase in the number of students will impose upon you, of adopting measures for increasing the corps of instructors in the near future, or of limiting the number of students. Their number can be diminished either by charging a sufficient amount of tuition in the preparatory department, or by cutting off one or both years of the preparatory course. It seems to me to be altogether desirable neither to charge tuition nor to cut off the preparatory course in the near future."

Prof. S. C. Derby, in his department report to the Board, after stating the number of students in his class (161), as an increase of about 50 per cent. in two years, adds: "With no wish to shirk work, I must frankly say that the present demands of the department are greater than I can meet in any satisfactory manner, and, as I have already stated, these demands will be greater next year. Our present custom of having classes heard by pupil assistants is unpopular and ought not to be continued. The best scholars and most energetic members have been selected for this work of instruction. At best it must be considered as a temporary expedient. The best course would be to add a Professor of Greek, whose training, capacity and skill in teaching would give reputation to the classical department and add strength to the University as a whole."

In accordance with these suggestions the Board divided, in June last, the Chair of Ancient Languages. Prof. S. C. Derby was retained in charge of the Latin and Prof. Josiah R. Smith was appointed to the Chair of Greek, subject to any further assignment of duty that circumstances might require.

Prof. Smith had been associated for five years with the University as Professor of Latin and Greek, but for the last two years had been absent in Leipsic qualifying himself for greater proficiency in teaching the classics, and learning the most approved methods of instruction.

At the election of members of the Faculty, in June last, Rev. William H. Scott, President of Ohio University, Athens, Ohio, was elected President *pro tem.* and Professor of Philosophy and Political Economy, and afterwards President, without the qualifying term. President

Scott's reputation as a skilled instructor, and especially his ability as an executive officer, with the experiences of eleven years in this capacity, made his appointment desirable.

The painful illness of Prof. John T. Short compelled his resignation of the Chair of English Literature and History. It is to be deeply regretted that the University was thus deprived of one so gifted, genial and faithful, and withal so devoted to its success. No assignment of the Chair under a full Professorship has been made, but Miss Cynthia U. Weld, former Professor in Ohio University, has been called to the position as *assistant* Professor.

Prof. A. H. Tuttle, to whom leave of absence for one year without pay had been granted, for the purpose of attending the John Hopkins' University in the further prosecution of scientific investigations in Zoology and Physiology, has resumed his duties in his department.

These embrace all the changes in the Faculty during the past year.

The expansion of the Horticultural and Agricultural side of the University has been as rapid as circumstances would permit. The division of the Chair of Agriculture and the calling of Prof. William R. Lazenby to the Chair of Horticulture and Botany, two years ago, has resulted most happily. More attention has been invited to the importance of this science, and as a result a wider feeling of interest has been manifested on the part of the farming community. To make the benefits of the University in this direction as far reaching as possible, the Board, at its meeting in July last, formally established a Chair of Agricultural Chemistry. Some difficulty, however, has been experienced by the committee, composed of the President of the Board, Chairman of the Executive Committee and President of the Faculty, in nominating a suitable Professor for the Chair. It is hoped, however, that in a short time a satisfactory name may be presented, the Board in the meantime feeling that delay can better be borne than a mistake in the selection of a proper person.

The attendance of students during the year has been eminently satisfactory, and the order exceptionally good. The number now enrolled is 352. Males in attendance, 307; females, 45.

Upon the recommendation of the Faculty, the following Degrees were conferred at the close of the last term, on the parties named:

Fremont Ackerman, Columbus, Ohio, Degree of C. E.
Joseph Nelson Bradford, Columbus, Ohio, Degree of Mech. E.
John J. Dunn, Dublin, Ohio, Degree of Mech. E.
John Howard Galbrath, Columbus, Ohio, Degree of B. Ph.

Charles E. Higbee, Cleveland, Ohio, Degree of B. Sc.
Arthur Bascom Howard, Reily, Ohio, Degree of B. Ph.
George William Knopf, Columbus, Ohio, Degree of B. Sc.
Charles Frederick Marvin, Columbus, Ohio, Degree of Mech'. E.
Charles Christian Miller, Baltimore, Ohio, Degree of A. B.
William Frederick Speer, Jefferson, Ohio, Degree of Mech. E.
Edward VanHarlingen, Columbus, Ohio, Degree of B. Sc.

The dormitories are accommodating about 80 students, the lack of room preventing the admission of many more applicants. The good order preserved by the clubs occupying these buildings cannot be too highly complimented.

The management of the farm and the results will fully appear in the reports of the Professors in charge, and of the farm manager, submitted herewith. The surplus increase, above what is used for support and maintenance, has been employed in permanent improvements to the farm, so that each year marks some advance in the general condition of its buildings, fences, etc.

Considerable expense was incurred in repairs, required by damages from the flood along the river line of the farm.

It was never expected, however, that the farm would be chiefly used for purposes of revenue, but operated in an experimental manner, most beneficial, through an understanding of the processes used, to the student, and through the published report of results gained, to the practical agriculturists of the State at large. These reports, embracing as they do, statements touching the relative value of different kinds of grain, grapes and vegetables, and the conditions favoring their production, together with the best system of fruit and forest tree culture, as well as approved methods of propagation and management of valuable plants, have been sought with an eagerness which clearly indicates the high appreciation placed upon them by farmers generally. The greatest care is taken to make these reports strictly *reliable*, as they are accepted and adopted on a large scale by actual market producers.

In addition to this link in the chain connecting the University with the farming element of the State, the usual winter course of popular lectures has been maintained. These lectures are upon the most interesting and profitable topics connected with the pursuit of husbandry. The "Farmer's Home," "The Dairy," "Wool and Mutton," "Diseases of Stock," "Grain Growing," "Weeds" and "Forestry," were but a small part of the series discussed, before an intelligent class of farmers, last January.

During the winter term a large number of lectures were delivered by members of the Faculty at Farmers' Institutes. The management of these Institutes is under the auspices of the State Board of Agriculture, whose co-operation and courtesy in this work the Trustees are pleased to acknowledge. Without recounting the advantages to the immediate community where these lectures were delivered, it is safe to say that the University was benefited beyond any outlay of money or time incident to this work, by the effective advertisement of its practical aims and objects. The continuance of this course is decided upon for the coming winter.

The fourth Annual Convention of the American Society of Teachers and Experimenters in Agriculture and Horticulture was held at the University in July last. A liberal interchange of views on questions relating to methods of teaching, co-operation in experimental work, text-books, etc., was indulged in, by members representing colleges founded on the Congressional land grant in other States. Good, no doubt, will result from such intelligent consideration of these important questions.

Information on other matters relating to the condition and management of the University will be found in their appropriate places in the body of this report.

In conclusion, the Board respectfully invites your attention to the fact that application will be made to the General Assembly, at its next session, for the following appropriations for the year 1884:

For ordinary repairs and necessary changes	$2,500
removal and addition to Library	5,000
improvement of campus	1,000
expenses of Trustees	450

Reference is also asked to that portion of the Report of the President of the Faculty urging a more certain provision for the *annual* wants of the University by setting apart therefor 1-20th of a mill on the grand duplicate property valuation of the State. It is respectfully urged that the financial condition of the State is such that this can be done without any increase of taxes, and will not interfere with a moderate reduction of the present State levy. The Board trusts, from the facts therein stated, that the General Assembly will recognize the wisdom of this measure.

Respectfully,

ALBERT ALLEN,
Secretary of Board.

ANNUAL REPORT OF THE PRESIDENT FOR 1882-3.

To the Board of Trustees:

In presenting my first annual report I labor under the disadvantage of having to deal with the history of the University for a period during which I had no connection with it. I shall therefore be compelled, in respect to many things, to speak of the present and the future rather than of the past.

I desire to express in this public way my appreciation of the kind reception that has been accorded me by all connected with the University. I am much indebted to their generous forbearance and cordial co-operation during my initiation into the somewhat complicated duties of my position.

THE FACULTY.

I find the instruction of the University in the hands of a body of able and earnest men, who are united in the purpose to make their work of a high order. They have adopted and maintained an advanced standard, and the University is known as a place of thorough and systematic training. By the payment of adequate salaries, the trustees have been able to command the services of professors of eminent ability; and they have used their opportunity so wisely that the faculty is recognized throughout the State and beyond the State as one of exceptional strength. One of the proofs of this is that the faculty is so often drawn upon to perform conspicuous services. Professor Orton is the State Geologist, and during the last year has served on the Mining Commission appointed by authority of the last General Assembly. Professor Mendenhall has been Director of the State Meteorlogical Bureau since it was established, and at the last Cincinnati Exposition was Chairman of the Commission on Electric-Lighting. Professor Robinson was recently selected to examine and report on railroad brakes. Professor McFarland, Professor Robinson and Lieut. Ruhlen spend much of their vacations in the inspection of the railroads of the State. Professor Lazenby has been appointed by the Board of Control of the Ohio Agricultural Experiment Station as the Director of the Station. Facts like these are the strongest commendation of those who have been chosen to do the work of instruction in the University.

The choice of professors is at once the most important and the most difficult duty that devolves upon the Board. In it they hold the keys of success and failure. It is reasonable to expect that the wise judgment which has controlled in the past will continue to prevail, so that as the faculty increases in numbers it will be in no degree impaired in scholarship or ability.

The board of instruction now stands as follows: Professors, 14; Assistant Professor, 1; Instructor, 1; Assistants employed by Board, 4; Assistants employed by Professors, 3; total, 23.

The absence of Professor Tuttle for the year was a temporary loss which the University could ill sustain for any considerable time, but it was a loss for which ample compensation will doubtless be received from the results of his studies during the year at Johns-Hopkins University. The efficiency of his department will be greatly promoted also by the new outfit that has been provided for his lecture-room and laboratory.

There was general regret at the resignation of Professor Short, who had been connected with the Institution during the last four years, first as Professor of Philosophy and History and afterwards as Professor of History and English. He was an indefatigable student and a progressive teacher. In his lingering illness, just now terminated by death, he has had the universal sympathy of the faculty and students.

The vacancy caused by his resignation has been filled by the election of Miss Cynthia U. Weld, A. M., Professor of Rhetoric and History in the Ohio University. Her rank is that of assistant professor. She is a teacher of superior qualifications, and is performing the work of the department with success.

The resignation of Professor Mason, at the close of the year, left the Department of Industrial Art without a head. Mr. C. F. Marvin, who was selected by the board to teach projection drawing for the year, is a competent instructor, and this part of the work goes on satisfactorily. It is to be regretted, however, that no suitable teacher has yet been found to take charge of the free-hand drawing. It is desirable that the department should be restored to its integrity and raised, as soon as possible, to full rank under the direction of a skillful and experienced professor.

The action of the board in recalling Professor Josiah R. Smith, after an absence of two years devoted to study abroad, to fill the newly created chair of Greek, meets with the cordial concurrence of the faculty. The division of the department of Latin and Greek had become imperative, as the work had grown to dimensions too great for the powers of any single teacher. Professor Smith's scholarly attainments and the success of his former labors in the University, designated him as the right man for the new department.

The professorship of Agricultural Chemistry, recently established by the board, will meet a long-existing want. All recognize the propriety and importance of such a department in an institution like this one, and this action of the board will be universally commended. The rooms already provided for agricultural chemistry in the new laboratory will need to be finished and equipped with furniture and apparatus; but these wants will no doubt be promptly met by the State whenever a professor has been elected to the department. The selection of a suitable professor is a matter of peculiar difficulty, since there are as yet but few men who possess at once the special scientific attainments and the practical training required in such a position. The field is new among us, and has hitherto been unremunerative. I hope, however, that you will soon be able to place in this chair a man who can perform its important duties in such a manner as to subserve the great practical ends for which it has been created.

STUDENTS.

The whole number of students for the year ending June 20, 1883, was 362.

The following table shows the whole number in attendance during each year, with the increase or decrease, and the per cent. of increase or decrease for each year:

1873–4	90.					
1874–5	118—	increase	28—	about	31	per cent.
1875–6	142—	“	24—	“	21	“
1876–7	251—	“	109—	“	77	“
1877–8	299—	“	48—	“	19	“
1878–9	294—	decrease	5—	“	1⅔	“
1879–80	217—	“	77—	“	26	“
1880–1	277—	increase	60—	“	28	“
1881–2	353—	“	76—	“	27½	“
1882–3	362—	“	9—	“	2½	“

These tables show a rapid and vigorous growth in numbers. The extraordinary increase of the year 1876–7 was the result of a reduction of the standard of admission, and the decrease of the years 1878–9 and 1879–80 was due to an advance of the standard. It is a mistake, though a very common one, to estimate the condition and progress of an institution of learning by the number of its students. The real test is the quality of its instruction and the quality of the men and women who receive its instruction. One student of native ability and energy who is well prepared for his work, and thoroughly taught by a competent faculty, will be of more credit to the University, and will render greater service to society, than a hundred who are incompetent or are trained by incompetent teachers. And yet, the conditions of admission being sufficiently high, it is gratifying that increasing numbers are seeking the advantages of the University; and every friend of the institution must hope that these advantages will year by year be sought by still greater numbers.

The quality of the work done by the students is good. It ought, however, to improve from year to year. Enlarged facilities for instruction, settled courses of study and methods of administration, the establishment of a strong and intelligent habit of work, and a careful winnowing of the lower classes, so as to retain only the capable and studious, will constantly elevate the standard of intellectual life in the University, and give it in time a body of thoroughly able and progressive students.

The indications are that in this advancement the young women will not be found deficient. In every department they exhibit a clearness and grasp of mind, a faithfulness of application, and a power of endurance, which prove them quite equal to young men in their capacity for college work.

From frequent statements made to me by members of the faculty, and from my own observation during the present term, I can speak with confidence of the general good conduct of the students. Their orderly behavior about the buildings and grounds, and their courteous bearing, deserve special commendation. The shameful practices which were once so common in colleges, but which are now, happily, disappearing even where they once flourished, seem never to have found a welcome here.

THE PREPARATORY WORK.

The University offers seven distinct degrees, covering three general and four technical courses. The courses are the fruit of much deliberation, and some of them are perhaps equal to those of any other school in the United States. The main difficulty, both in arranging the courses of study and in performing the work of instruction, arises with the preparatory classes. These classes are very large, occupying the time and exhausting the strength of men who are, presumably, employed to do advanced work in their several departments. The preparatory classes in Latin at present number fifty-five and fifty-seven, consuming half the time and more than half the energy of the professor. The class in physical geography numbers about sixty, and imposes an exacting labor through two-thirds of the year on the professor of geology. The preparatory class in physiology numbers over eighty, one section of more than fifty being heard by the professor of that department, and the other, though heard by an assistant, requiring frequent attention from him. The class in botany last spring numbered one hundred and nine.

It seems unwise to use the daily strength of such teachers in work of this grade. It seems more unwise to allow it to be so burdensome to them as measurably to disqualify them for their more appropriate duties. Still worse, the work done at such cost is of necessity imperfectly done; for when classes are so large it is impossible to teach them well. Teaching of the first order is never done in a large class. The student should come into close and frequent contact with his teacher; otherwise he receives in but a slight degree the peculiar advantage of having a teacher—the stimulus and help of personal force, the inspiration and impulse of the teaching mind. In order to the highest success in teaching, therefore, it is necessary that the class should be small. But in our case the worst feature of all is, that the largest classes are composed of the youngest and least trained students, the very ones who are most in need of the teacher's assistance and of every help and incentive which the recitation can afford.

I trust that the Board will see clearly the necessity of providing in some permanent and efficient way for a considerable increase in the teaching force for the preparatory work. No class in this department should contain more than twenty-five, and twelve or fifteen would be still better. One of the surest signs of a good school is a high ratio of teachers to students.

THE MILITARY DEPARTMENT.

The teaching of military science and the practice of the drill have been maintained during the year according to the requirement of law. Most of the students perform their duty promptly and cheerfully, and are much benefited by it. Some are excused for unquestionable reasons. It is evident, however, that the present system of excusing admits of grave abuse, and I therefore recommend the adoption of some more stringent regulation. Lieut. Ruhlen, the Commandant, is firm, yet kind and judicious, and his management has been intelligent and successful. It is unfortunate for us that the term of his appointment will soon expire.

THE DORMITORIES.

These buildings continue under the same system of control that has been so successful in former years. The University club has chosen excellent officers for the year and was never perhaps in a more prosperous condition. The applications for membership are constantly in excess of the accommodations. The rooms being free of rent, the expense of living in the club is very low. The average cost per week of board, furniture, towels, soap, fuel, light, and care of room, for the first month of the present term was $2.97, and for the second month, $3.18.

LABOR BY STUDENTS.

A good deal of work on the farm and experimental grounds is done by students. This is a mutual advantage. The farm and experimental station can command labor whenever it is needed, while the students who desire it find work near at hand which is fairly remunerative and which they can perform in the interval of their college duties. The work of the dairy is wholly performed by students. The present rate of wages is fourteen cents an hour, the student boarding himself. So far as I have observed, or have been informed, the labor is faithful and efficient; and the fact that it can be employed enables many young men to defray a part of their expenses, and thus prolong their attendance at the University. In addition to this is the advantage of healthful exercise, which students, as a class, especially need, and yet, are proverbially apt to neglect.

THE AGRICULTURAL EXPERIMENT STATION.

The connection between the station and the University continues on terms mutually satisfactory and mutually advantageous. The intelligent and careful management by those in charge of the station, gives promise of very valuable practical results. It is worthy of more liberal means, and if they are supplied it will become highly useful as a promoter of the agricultural interests of the State.

FARMERS' LECTURES.

The lectures at the University, which were begun a few years since for the benefit of farmers, were continued last winter with success. The attendance was much greater than ever before. The sixth course has been announced for January next, beginning on the 15th and continuing ten days. We anticipate a large attendance and an interesting and profitable occasion.

FARMERS' INSTITUTES.

These institutes, sustained by the co-operation of the State Board of Agriculture and the University, constitute another valuable auxiliary to the farmer. The professors of the University have devoted much time to attendance at the institutes and to the preparation of lectures for them. The fruits are to be seen in the growing interest among the agricultural population, not only in the institutes but also in the University. They see more clearly that the University is in sympathy with their true interests and is endeavoring, in no narrow or exclusive way, but in a large and catholic spirit, to extend to the farmer's son and daughter an education that is at once practical and liberal.

RELIGIOUS EXERCISES.

Daily assemblies of the students are held in the lecture-room, at which all who are not excused for special reasons are required to attend. The exercises usually consist of singing, accompanied with the piano and cornet, reading of the Scriptures, and prayer.

THE NEW BUILDINGS.

During the year the Chemical Laboratory has been completed, and it is now occupied by the departments of pure chemistry and of mining and metallurgy. The former occupies the entire second floor, where it is provided with ample facilities for instruction and for practical work. The plans are the result of long experience and of special observation and study, and the appliances are hardly surpassed in completeness or convenience.

The Professor of Mining and Metallurgy occupies the west half and rear wing of the first floor, which are well adapted in arrangement and equipment for their purpose. The east end of this floor is designed for agricultural chemistry.

It should be mentioned that the gas and steam fitting in this building was done by young men who received their training in the University.

The new Botanical and Horticultural Hall, for which an appropriation of fifteen thousand dollars was made at the last session of the Legislature, was begun during the summer, and is now under roof. It will probably be ready for use at the opening of the Spring term. Though less spacious than it should be, on account of the limited sum allowed for its erection, it would be difficult to over-estimate its importance to the department and to the institution. It will contain storage-rooms in the basement, a recitation-room and special laboratories on the first floor, and a museum and general laboratory on the second floor. A conservatory, built after the most approved plans, will be added.

The removal of the chemical and metallurgical work into the new laboratory has afforded great relief in the main building, which had been overcrowded for several years. Additional rooms have been occupied by the department of mathematics and civil engineering; much more convenient accommodations have been secured for clinical work and dissections in the veterinary and physiological departments, and the large room formerly used as the chemical laboratory has been set apart as a study and lunch-room for young men.

THE NEED OF MORE ROOM.

Nevertheless, we are still embarrassed for want of room. The library and reading-room is extremely contracted for its purpose. There is neither space on the shelves for the books, nor space on the floor for the students who come to consult them. The library presents one of the most important and imperative questions that we now have to deal with; and if we mean to have it fulfill its relations to our work, in any adequate degree, its removal and extension cannot be much longer postponed.

The Young Ladies' Literary Society is without a hall. There seems to be no good reason why this society should not have a place of meeting as well adapted to the purposes of such a society as those assigned to the young men. As the number of students increases, other literary societies will naturally be formed. There is now need of at least one more. A majority of the students can not be accommodated in those already organized, while all, except perhaps the very youngest, would receive great benefit from the training which such societies impart. But the organization of a new society would create the need of another hall.

The Engineering Association has no place to hold its meetings, except as it is granted the use of one of the recitation-rooms, and no place at all to arrange and exhibit models, drawings and other materials pertaining to its work.

OTHER BUILDINGS NEEDED.

But other demands are also to be met. Our present lecture-room is almost filled by the students alone. On public occasions it is altogether too small. At the last Commencement, it is said, the visitors filled the room and the students were compelled to remain outside. Being so far removed from large rooms, it seems indispensable that we should have one of our own.

I would also urge upon your attention the importance of a separate, fire-proof building for the departments of geology and zoology. The geological museum is large and of great value. Much more material has been collected, but it is simply stored in a tight basement room for want of space above. Many of the specimens are necessarily of great size and weight, so that it would probably be unsafe to place more of them in the present museum, even if the room were large enough to admit them. The museum being directly over the lecture-room, in which the entire body of students is assembled every day and which on special occasions is filled with people to its utmost capacity, prudence dictates that it should not be overloaded with heavy material. Yet, a proper display of the geology of the State requires that a large amount of such material should be included. The State has devoted years of time and tens of thousands of dollars to a geological survey. The time and the money have been well expended. This collection of the mineral products of the State is one of its most valuable fruits, which by a wise provision has been placed for exhibition, examination and use, under the care and control of the State University. Shall it not be properly cared for? Other collections would come to us, if we had a suitable place to receive and display them. The educational value of an extensive, well selected and well arranged museum would be far beyond its cost. It would, besides, be a place of interest to thousands of visitors. Even as it is, this museum is the most attractive room in the University to the majority of those who are shown through the buildings. This department, so important in its bearings on the development of our natural resources, is worthy of the most liberal support. It should be supplied with every aid that will increase its power or contribute to its convenience. A fire-proof building should be erected which would provide abundant room for a proper arrangement of the specimens already collected and for all that may be collected for years to come, and which would at the same time afford a convenient lecture-room, laboratory, library, and study for the professor of the department.

When such a building is put up, provision should also be made in it for the zoological cabinet, with the lecture-room, laboratory, library and study of the professor of zoology. At the same time something should be done on a liberal scale for enlarging the collection in this department, and especially for placing in it a complete representation of the zoology of Ohio. The advantages of having the entire natural history collection in one building are obvious; and the additional expense of erecting and furnishing a secure and convenient building for both will be much less than twice the expense of providing for the geological department alone. The cost of such a building, that it may fulfill its purpose and reflect honor on the intelligence and liberality of the State, ought not to be less than forty thousand dollars.

The department of physics is greatly in need of increased accommodations. All the space available in its present location has already been assigned to it; yet it is so confined that much of the work must be done at disadvantage. A considerable portion of the large room on the first floor is necessarily used for laboratory purposes, which interferes with its use for recitations and lectures. With the smallest class in the department it is crowded, and the largest, even when divided into two sections, can scarcely be accommodated at all. The whole space in that part of the basement which belongs to the department, has been fitted up for laboratory work, but it falls far short of the requirements. The nature of physical laboratory work is such that it is often impossible for more than two students to work in the same room, and in many cases it is necessary to darken a room for a single student, thus preventing its use at the same time by any one else. In much of the work, also, workers and their instruments cannot be placed near each other without destroying the value of the results. This is especially true of many operations in electricity and magnetism, yet under our present arrangement instruments pertaining to these branches of physics cannot be placed at sufficient distances from one another. And in this department even more than most others, we are compelled to recognize constantly increasing demands. In no direction is investigation being pushed more rapidly or with more important practical results. If, therefore, we mean to retain our position, to say nothing of advancing, we must keep pace with the progress of knowledge and invention. But this we cannot do without greatly increasing the facilities of the department. Its growth must stop, unless a new building can be provided within a few years; and as soon as it ceases to grow, its prestige and power will begin to decline.

The law of Congress which created the endowment of this and similar institutions, provided expressly that military tactics should be included among the branches to be taught in them. During a great part of the college year out-door drill is impracticable, or would be unreasonably severe, on account of inclement weather. Hitherto on rainy or very cold days the time of drill has been spent in the practice of the manual of arms in the main college building. This arrangement is by no means satisfactory. The hall and basement rooms are but ill-adapted to such a use, and when they are thus occupied almost every other use of the building is in a great measure interrupted. A hall for this purpose would meet the requirements of the case much better, and would leave the main building free. The new hall should contain also an armory and room for the artillery guns.

The erection of a drill-hall would furnish an opportunity to obtain, in the most economical way, a much-needed gymnasium. The benefits of systematic physical exercise and training are scarcely of secondary value to a student, a fact which the leading colleges of the country have recognized in the erection and equipment of buildings for this object. Next to the provision made for intellectual instruction and discipline, the State could hardly render a better service to the young men who come here than to provide means for the development and culture of their bodies.

I must add still another want of the same kind. We are quite behind, not only the foremost State Universities, but all of the best colleges, in the fact that we have no astronomical observatory. An observatory is needed by the departments of mathematics, civil engineering, and physics. Such a want ought not to remain unsupplied, and I hope that we shall not have long to wait for the erection of a well-equipped observatory.

NEW DEPARTMENTS NEEDED.

We are in need of men as well as buildings. I have already spoken of the demand for more teaching force in the preparatory work. Here the necessity arises from the great number of students in the classes. But elsewhere a necessity no less real arises from the nature of the subjects to be taught. Some of the existing departments should be divided, so that each professor may give his energies exclusively to the work which he is specially qualified to do. He should have time for exact and thorough preparation for his daily work and for extended study and research beyond the boundaries of mere class-room work. A strong and growing man, keeping abreast of the progress in his department, and representing his institution before the educational, the scientific, or the literary world, must have opportunity for wide reading and for careful thought. If his field of instruction is too extensive, or if his classes are too numerous, he and his institution must pay the penalty in deficient attainments and a restricted influence.

Some entirely new departments should be created. University education implies a range of instruction having much wider limits than ours. Instruction in some branches most essential to the citizen, and in some most important in industrial life, is yet unprovided for.

In these two ways, by the division of existing departments and by the creation of new ones, we could easily find place for several additional professors; and, if Ohio is to keep pace with other States, if the Ohio State University is to claim and hold a position among the strong and influential colleges of the country, we must lose no time, but fairly confronting the demand upon us, we must strive to fulfill it promptly and completely.

There should be in the University a Chair of Political and Social Science. The questions falling within the province of these sciences are of the first concern, and they are rapidly pressing to the front. As a people we can not refuse to consider them, and, if we fail to consider them wisely, our failure will involve us in the most serious consequences. A State University, above all others, ought to furnish the means for the most intelligent and extensive study of politics and society. It ought to prepare men for the wisest performance of the duties, and the wisest exercise of the rights of citizenship. It ought to prepare men who as jurists, as legislators, as administrators of government, as private citizens enjoying the privileges of freemen, will have a firm grasp of those principles which underlie our political and social institutions, and will be able to meet, with sound arguments and just counsels, the crises in our public affairs which the future is certain to bring.

The attention now given to these subjects in the University is confined to political economy two hours a week through two terms, and constitutional law two hours a week through three terms. The instruction is in the hands of the president, who is also professor of psychology, ethics and logic. Cornell University has two resident and three non-resident professors to teach the subjects which are here assigned to one, and neither of them is burdened with the duties of the presidency. Michigan University has three professors and a lecturer for the same work, neither of whom is president.

Already during the present year several persons have applied for a course in architecture; but we have no instructor. A department of architecture and sanitary engineering would meet an existing and growing demand.

The chair of zoology and comparative anatomy has too wide a field. It would be an important gain to divide these subjects between two chairs—one of anatomy and physiology, which the present incumbent would choose to retain, and one of entomology and general zoology, to which a skillful entomologist should be chosen.

A department of veterinary medicine and surgery, in good hands, would constitute an important adjunct of the agricultural department, and would enable us to promote, in a very effectual way, the interests of farmers, stock raisers, and all owners of domestic animals. Nothing worthy of the name exists in the State. Where can such instruction be so appropriately provided for as in the University of the State, and what can be in closer agreement with the primary objects for which the University was founded?

Express provision should be made for the teaching of rhetoric and oratory. At present theoretical rhetoric is in the hands of the professor of history, which makes the labor of that department, with the large classes which it is certain to contain, a heavy burden. The little that we are able to accomplish by way of direct training in reading and speaking, is done by Professor Orton. No member of the faculty could do it better, but every one must see how incongruous it is to attach the teaching of practical rhetoric to the chair of geology.

But the need of enlargement is nowhere more imperative than in the department of mathematics and civil engineering. These sciences are extending year by year. New methods are being devised, new instruments are being invented, and new lines of investigation are being developed. More students are found in this department than in any other. The class enrollment of last year was five hundred. As may be supposed, the professor is sadly overworked. We have, in fact, three departments in this one — pure mathematics, civil engineering, and astronomy, which in other schools that rank with ours are kept distinct.

A division should also be made in the department of modern languages. Both German and French are taught by the same teacher. Some of the classes are so large that it is impossible to attain such results as we ought to produce. The work now performed by Miss Williams would give full employment to two teachers, and the true interests of the students require that there should be two.

In some of the best colleges and universities, chairs of pedagogy have been established. Education as a science is little understood, yet nowhere is the attainment of correct and intelligent views so important. It would be impossible, perhaps, in any other way, to accomplish so much for the elevation of the common schools, and the infusion into them of a sound and wholesome spirit, as could be done by placing an able professor of the philosophy of teaching in our leading educational institutions. The State, especially, which has founded and fostered a vast system of public schools, ought to provide for them the guidance and stimulation that would be afforded by such instruction at her own University.

THE TRUE POLICY OF THE STATE.

The preceding array of wants may look somewhat formidable, but it is in no sense extravagant. The wants are real. To supply them would only give to the University the means of doing what it was designed to do, and what greatly and urgently needs to be done.

It is gratifying to note that Ohio has begun to recognize the claims of the University to her sympathy and substantial support. Last year her appropriations for it amounted to $21,950. It is true, that compared with the character and magnitude of the demand, this is but a meager sum, yet it gives ground to hope that something commensurate with the greatness of the object will hereafter be done.

If the State had no University, a strong and, I believe, conclusive argument could be made to show that she ought to create one, even though the whole burden should fall on her own treasury. But, instead of that, a liberal foundation, now worth more than a million of dollars, has been laid without expense to her. About half of this sum is invested in grounds, buildings, and apparatus. The remainder yields an annual income of about thirty-three thousand dollars. This income is increased by some six thousand dollars from fees and rents. The amount available for the expenses of the institution is, therefore, near forty thousand dollars.

How insufficient this sum is for the purposes of a great institution of learning, will be made apparent by a review of the foregoing statement of what we lack. Those needs are crowding upon us, and yet our present resources are scarcely adequate to the support of the work now going on. If anything more is necessary to exhibit the necessity of our situation, it is found in a comparison of our income with that of the colleges which hold the foremost rank. I give in each case the latest report that I have received. The income of Harvard for the year 1881–2 was $233,352.88, and during the same year it received besides $208,032 in gifts. The income of Yale for 1880 was $182,855; of Cornell for 1880, $73,981, and this is now greatly increased; of Boston University for 1880, $105,569; of the University of Missouri for 1880, $51,915; of the University of Minnesota for 1880, $51,090; of the University of Wisconsin for 1882, $92,736.90; and of the University of Michigan for 1881–2, $274,002.84.

With reference to the State Universities in this list more may be said. By act of March 23, 1883, the Legislature of Missouri appropriated for the University of that State $100,000 in addition to its regular income. A year ago last winter the Legislature of Minnesota appropriated to the University of that State $180,000 for buildings. The President of the University of Wisconsin in his last report says: "A grave question is pressing increasingly into the foreground with each succeeding year, the proper method of enlarging the income of the University". The income of the University of Michigan given above includes the following items: University interest paid by the State, $38,398.47; State aid 1-20 mill tax, $38,250; State appropriation, $76,000; and students' fees, $85,979.10. The 1-20 mill tax has been paid by the State of Michigan to the University annually for ten years.

Yet the wealth of each of these States is far below that of Ohio. Their taxable property was appraised in 1882 as follows: Minnesota, $311,200,841; Wisconsin, $446,760,585; Missouri, $649,267,242; Michigan, $810,000,000; and Ohio, $1,634,910,734. The taxable wealth of Ohio is, therefore, more than twice that of Michigan, two and a half times that of Missouri, almost four times that of Wisconsin, and more than five times that of Minnesota.

Of these States Michigan is the wealthiest; yet her tax-duplicate is less than half as great as that of Ohio, and her revenue from taxation is less than one-fourth as great. Why should not Ohio, with her greater wealth and population, pursue the same liberal and enlightened policy with respect to advanced education? Ohio should foster her University. She should make it the head of her educational system. She should plant around it her professional schools. She should enrich it with buildings, laboratories, apparatus, libraries, and men. As the result of such a course, it would in a few years be ranked among the first institutions of the land, and would become the center of a great intellectual life whose influence would be felt not only throughout the State but throughout the whole Nation.

In much of what it has, indeed, the Ohio State University is strong. For scientific instruction, especially, it has superior equipments and superior men. But even here a new expenditure is necessary and will continually be necessary, in order to keep pace with the rapid developments of science, the improved facilities for instruction, and the increasing number of students. Besides, as I have already indicated, new departments must be created; new apparatus must be supplied; new buildings must be erected. If we are not to fall hopelessly behind in the progressive movement of the times, we must press constantly and rapidly forward. Let us face the whole subject. Let us intelligently consider the whole problem to be solved, and then resolutely set about the solution of it. A great future is before the people of this State. Education, broad and deep, is one of the essential conditions of their future well-being. Knowledge, intellectual discipline, and intellectual power are the weapons by which the dangers of society are to be warded off and the foes of society are to be overthrown. The State gives hundreds of thousands of dollars each year in support of asylums to heal or to mitigate the consequences of the past. Shall she not give some comparable sum to set at work healthful and enobling causes for the future?

If we are to maintain this University in a manner at all adequate to the great possibilities that belong to it, other and ampler sources of revenue must be opened. This is the meaning and end of my whole argument. What is needed to open these broad and inviting fields and to develop in the University the power to enter and posses them, is that Ohio shall do what Michigan has done and what Wisconsin has done. What is needed is a legislative act that will place the University side by side with the public schools and the benevolent institutions of the State. One-twentieth of a mill on the tax-duplicate, added to its present resources, would afford to the University an income somewhat commensurate with the dignity of the State and the character of university education. A tax so slight would be felt by no one. The man who pays tax on two hundred dollars, would contribute to the University just one cent a year. The man who pays tax on twenty thousand dollars would contribute to the University just one dollar a year.

The advantages of this plan are so great and so obvious that they hardly need to be named. I will specify a single one. To administer an institution with success, it is necessary not only to have funds but to know beforehand how much will be available. Otherwise no definite plans could be formed. No new department could be founded. No new professors could be elected. For it might happen that in another year there would be no money to support them. On the other hand, if a given sum is fixed and can be depended on year after year, it will be possible to shape the whole policy of the University with confidence.

SPECIAL APPROPRIATIONS.

The dormitories and one or two of the residences should undergo extensive repairs the coming year. The large dormitory can be fitted by the expenditure of a few hundred dollars for the accommodation of a considerably larger number of students. For work of this kind on the various buildings not less than twenty-five hundred dollars should be appropriated.

It is time also that something should be specially appropriated for the improvement of the campus. Much has been done within the last five years to beautify the grounds. But it has been done at a great disadvantage, because the money expended in this way was withheld from other uses that were scarcely less urgent. And what has been done is but a beginning of what should be done. The services of one man will be constantly needed to keep the grounds in order, and new work will be required in laying out and completing walks and drives. An appropriation of one thousand dollars by the Legislature will add greatly to the convenience and attractiveness of our surroundings, and would afford some relief to our over-burdened resources.

Our library ought to receive a large addition. If we expect to fulfill in any respectable way the function that we have assumed, we must build up our library. The cry for books comes in from almost every department. Work in history and literature is restricted to narrow limits, and in philosophy and social science we are scarcely better off. The professors of geology, of chemistry, and of physics, all ask for books. We are embarrassed on every side by the poverty of the supply; and I do not see how another year can be allowed to pass without an appropriation that will at least meet our most immediate and pressing wants. The case is a strong one. To state it is to make a powerful plea for it. To understand it is to admit it.

I commend to your attention the request of Professor Lazenby for an appropriation of three hundred and fifty dollars to purchase material and implements for the work in his department. A request so moderate for a want so obvious can hardly stand in need of arguments.

I congratulate you on what has already been done in the University, on the honorable history it has achieved, and the commanding influence to which it has risen. I trust that through your earnest labors and those of your successors it will become more and more an honor to the State and a source of intellectual light and power to society.

WILLIAM H SCOTT.

Ohio State University, November 15, 1883.

DEPARTMENT REPORTS.

DEPARTMENT OF GEOLOGY.

W. H. Scott, President Ohio State University:

DEAR SIR: I submit herewith a report of the work done in my department during the college year ending June 21, 1883.

My class-room work was seriously interfered with during the entire year by the duties which I had assumed, with the consent and approval of the Board of Trustees, on the Geological Survey of the State.

The amount of time and labor required for the completion of the volume of the Geological Reports, with the publication of which I was charged, far exceeded what I had reason to expect or could possibly have foreseen.

In view of this fact, the Board considerately granted me leave of absence from College for the entire Fall term, and also allowed me to turn over to others some of the work of my department for the remaining terms of the year.

The burdens of this geological work have followed me into the present year, and they are still reducing to some extent the efficiency of my service in the class-room, but I am happy to say that I see the end of these unusual duties in the near future.

During the Fall term of last year, the Junior Class in General Geology was conducted with great success by Prof. Lord, who kindly relieved me of my most important and difficult college duty. The class numbered 22 members.

The two sections of the First Preparatory Class in Physical Geography, numbering 29 and 27, respectively, were taught during the same term by Messrs. W. H. Miller and A. D. Selby. Their work was done skillfully and creditably.

The Second Preparatory Latin Class, numbering 39 members, which had been in my hands for several years, on account of the want of teaching force in that department, was very satisfactorily provided for by the employment of Rev. A. C. Hirst, D. D., of the city. Dr. Hirst brought to the work a ripe experience in teaching and an inspiring enthusiasm in classical study. He conducted the class in the third term of the year also.

These several arrangements were made by me on consultation with the President, in accordance with the direction of the Board of Trustees.

In the Winter term I resumed my college duties, teaching the three classes named above, but being relieved of the section in Physical Geography, numbering 31 members, by the employment of Mr. W. H. Miller for part of the time.

In the Spring term I limited my own work to the Junior Class in General Geology, and to the section of it that is required to take up Economic Geology.

One member of the Graduating Class made selection of geology for his laboratory study, and received from me such attention as I could, from time to time, bestow.

The rhetorical exercises of the college students were also in my hands during the second and third terms. These exercises occur weekly, but the proper criticism and correction of the papers presented demand a large measure of time, larger than I am ever able to bestow. The present assignment of this important work must be regarded as a makeshift only.

While regretting that my college work was obliged to suffer during the last year, to some extent, by my absence and by the imperative demands made upon my time and strength by the outside work which I had undertaken, I wish to call the attention of the Board to some elements of compensation.

In the first place, the University is thus directly associated with the scientific work which the State is carrying forward in this special field, and, secondly, we are enabled to give to our students a larger measure of that practical training which has always been esteemed one of our most distinctive and valuable characteristics. I have employed upon the Geological Survey of the State a half dozen or more of our young men, for varying lengths of time, and several of them have already become competent and reliable field geologists, ready to meet any demands for service in this important line which the interests of the State may make upon them.

Very respectfully,

EDWARD ORTON,
Professor of Geology.

Ohio State University, Nov. 6, 1883.

CHEMISTRY.

President William H Scott:

DEAR SIR: I have the honor to present this, my Eleventh Annual Report for the Chemical Department of the University:

The total number of pupils enrolled for the year 1882–83 was 118, viz.:

In general chemistry	88
In analytical chemistry	30

Both classes were exceptionally large and also exceptionally good.

The removal to the new Laboratory was accomplished during the vacation, and the Department has reason to be thankful for its new quarters. Although the laboratory does not find place among the large laboratories, I think it may be justly ranked among the most convenient in the United States, and I count it a gain that the metallurgical work-rooms are in the same building.

By a recent vote of the faculty, a student who chooses to make chemistry a specialty will be allowed to "double time", so as to take five years' nominal work, two hours daily. This ought to be sufficient time to enable any diligent student to reach a fair degree of attainment in practical chemistry, and, taken in connection with allied studies, fit him for the work of a "Chemical Engineer". Hereafter only students in mining will be required to take analytical chemistry, and all others take it as an elective study.

We need more books, especially sets of the Chemical Journals. The last year especially showed the need of such; I hope that some way may be found to supply us with at least the "Annalen" of Liebig.

I beg also to renew my request that shallow cases for specimens be put in the lecture-room, between the windows. Eight will be required. I need them to display in suites the chemicals made and used, together with the important bye-products in all of our prominent chemical industries, and I have no doubt that I could obtain the specimens required from the manufacturers, at little or no cost to the University.

Mr. David O'Brine continues to act as my assistant, and took charge of the removal of apparatus and chemicals.

Very respectfully yours,
SIDNEY A. NORTON,
Professor of Chemistry.

DEPARTMENT OF AGRICULTURE.

President Scott:

DEAR SIR: I have the honor to submit the following report upon the condition of the Department of Agriculture and Veterinary Science.

During that part of the last college year not included in the report for 1882, the classes in junior and senior Agriculture together numbered nineteen. The class in Veterinary Science at the same time consisted of five. At the present time the Agricultural classes have eight students and the Veterinary class has nine.

The only pressing need which I have to report in behalf of this Department, is of three or four strong tables in the basement under my class-room for the use of the Veterinary class.

The fifth annual course of Lectures given to Farmers at the University in January last was well received; the attendance being nearly double that of any previous year. At the close of the course the gentlemen in attendance formally and unanimously expressed the desire that a similar course be given in January of 1884.

In July last the Association of Agricultural and Horticultural Teachers from Colleges founded on the Congressional land-grant held its fourth annual meeting at Ohio State University. The attendance was good and the meeting proved to be both enjoyable and profitable. The meetings of the Association are held each year at a different institution for the comparison of facilities and methods of study and work.

I beg, Mr. President, to call your attention to the small number of students in the Agricultural classes. No one has yet graduated from the Agricultural Department, although our school has been ten years in operation and has graduated five successive classes. Some will explain our small number of agricultural students by saying that farmers do not appreciate the value of a good education, and therefore do not send their sons to the University. The farmers themselves explain the absence of their sons by referring to the length of time required to complete our college course. If a young farmer from a country school can enter the Preparatory Department and afterwards complete the course, six full years will be required; and after spending six years in college most young men expect to find something more lucrative and less laborious than farming.

Possibly the condition of our country schools has some influence to keep farmers' boys from the University; few of the pupils from country district schools can successfully meet our requirements, while any bright boy from a city or village High-school can readily enter the Preparatory Department, and those from the best High-schools can enter our college classes. Hence the University contains a large proportion of city pupils and comparatively few from the country.

To meet the wants of many young farmers that I believe deeply feel the need of a scientific education, but who are unable to spend six years in its acquisition, I beg to propose a short course of two years. Such a course, I think, may be arranged so as to require the formation of no new classes and so as not to add materially to the work of any teacher. The plan I propose may be outlined as follows:

First Year.

1st term--Algebra or English; Physical Geography; Soils, Fertilizers, etc.
2d term—Algebra or English; Physics; Crops and Tillage.
3d term—Botany; Physics; Farm Management and Dairying.

Second Year.

1st term—Chemistry; Physiology; Stock-raising, etc.
2d term—Chemistry; Zoology or Mech. Lab.; Diseases of Animals.
3d term—Horticulture; Zoology or Mech. Lab.; Prevention and Cure of Disease.

That a short course like the above has many deficiencies is easily seen, but it will in a good degree meet the wants of hundreds of young farmers, and if maintained for a few years will accomplish much good and secure for the University a multitude of friends.

With great respect, yours truly,
N. S. TOWNSHEND.

DEPARTMENT OF MATHEMATICS AND CIVIL ENGINEERING.

W. H. Scott, President:

SIR: I have the honor to submit the following report touching the work in this department during the last academic year, closing in June, 1883.

Fall Term, 1882—Algebra, 49; Analytical Geometry, 45; Geometry, 35; Surveying, 37; Civil Engineering, 23.

Winter Term, 1883—Astronomy, 36; Calculus, 45; Civil Engineering, 21; Descriptive Geometry, 27; Geometry, 34; Algebra, 36.

Spring Term, 1883—Calculus, 35; Trigonometry, 46; Civil Engineering, 12; Astronomy, 30; Descriptive Geometry, 24; Advanced Calculus, 11. Total, 546, under my personal direction.

LASSES TAUGHT BY ASSISTANT PROFESSOR RUHLEN.

Fall Term, 1882—Algebra, 30; Geometry, 43; Analytical Geometry, 4.

Winter Term, 1883—Algebra, 27; Geometry, 38; Astronomy, 4.

Spring Term, 1883—Trigonometry, 29; Astronomy, 4. Total in the year, 179.

CLASSES TAUGHT BY ASSISTANT G. W. MCCOARD.

Fall Term, 1882—Algebra, 1st section, 27; 2d section, 7.

Winter Term, 1883—Algebra, 1st section, 29; 2d section, 13. Total, 76.

The total of all the classes in the department, 801.

The work in all the classes has been a sfactory. Field-work, for the classes in engineering, is carried on in the fall and spring terms, every day when the weather permits. It consists in leveling, measuring heights and distances, setting out curves, cross-sectioning, mapping with the plane table, manipulating the sextant and the solar compass—in fine, practicing in almost every kind of work pertaining to the business of the engineer. In the winter session, when field-work is ordinarily impracticable, the classes are instructed in all kinds of drawing pertaining to engineers' work, viz.: Platting, isometric, axonometric, and topograhic drawing; shades and shadows and the general principles of perspection.

Very respectfully submitted.

R. W. McFarland,
Prof. Math. and Civil Eng.

hio State University, November 14, 1883.

DEPARTMENT OF ZOOLOGY AND COMPARATIVE ANATOMY.

W. H. Scott, President:

Dear Sir: I have, as you are aware, been absent from the University on leave granted by the trustees for the whole of the collegiate year that has recently closed. I am glad to be able to say that I return to my duties with renewed health and energy, feeling better prepared to do my work, and prepared to do better work than ever before. I trust that the future will prove that the courtesy extended to me after some hesitation by the trustees, was an act not only of kindness but wisdom on their part as well.

The advanced (elective) work in my department was suspended during my absence. The large elementary classes were, however, efficiently provided for, that in Elementary Physiology, numbering 62 students, having been taught by Mr. H. A. Wilgus, a graduate of the class of 1882, and that in Zoology, numbering 18, by Mr. C. C. Green, a special student in my department; in both cases, I believe, with very satisfactory results.

My salary for the past year (which was of course vacated by my absence) was very justly appropriated, in great part at least, to the permanent equipment of my department. From the fund thus placed at my disposal I have deemed it necessary to purchase new skeletons of man, the horse, and the ox, our old ones having so far yielded to the wear and tear of ten years' constant use as to be no longer available. I have also procured a suitable lecture table, which has long been needed in connection with my class-room work, and have doubled the number of desks in the physiological laboratory.

The remainder (and by far the greater portion) of the money appropriated has been applied to the purchase of apparatus and appliances for practical work in physiological anatomy and physiology. While much that is important and still more that is desirable remains to be added, the laboratory in my charge is now equipped with the means for efficient anatomical and histological work, and with apparatus for such work in experimental physiology as will give to the student clear and definite conceptions of the fundamental activities of the living body. As far as my knowledge goes this is the first and only well-equipped physiological laboratory in the West open to undergraduates.

All of which is respectfully submitted.

Albert H. Tuttle,
Professor.

DEPARTMENT OF MECHANICAL ENGINEERING.

President W. H. Scott:

SIR: I respectfully present the following report of the Department of Mechanical Engineering for the year ending June, 1883:

First Term—Students in Analytical Mechanics, 9; Thermodynamics, 3; Strength of Materials, 5; Mechanical Laboratory, 15.

Second Term—Students in Prime Movers, 3; Mechanism, 3; Machine Drawing, 5; Mechanical Laboratory, 17.

Third Term—Students in Prime Movers, 3; Mechanism, 3; Machine Drawing, 4; Mechanics, and Strength of Materials, 1; Mechanical Laboratory, 20.

I feel it my duty, in the interest of my work in the department, to ask your attention to the fact that, although the department is equipped with a fair amount of appliances for illustrating the ordinary operations of mechanical practice, yet it is sadly deficient in the means for illustrating by actual practice the higher operations, such as standards of length, standard gauges of various form, tools of precision, dynamometers, pressure jacks, testing machines for lubricants and other materials. Unless provision is made for meeting the growing demand for these things here, we shall soon be found far behind other States in such matters. I hope steps will be taken by which $1,000, at least, can be placed at the disposal of the department for supplying the need mentioned.

Another serious want of the department is books to which the students can be not only referred, but which may be placed in their hands for verifying and amplifying the class-room subject-matter.

It is hoped that the department may be as well sustained by material aid from home as from abroad. With respect to the latter, I take great pleasure in stating that the department during the year has received valuable presents amounting to something like $800.

One of these donations is from James Leffel & Co., of Springfield, Ohio, consisting of a complete turbine water-wheel, such as is supplied by that company to its purchasers. It is a 15-inch iron wheel, regularly fitted up in an iron case, with proper mountings, water-gate, etc. This serves a very useful purpose as a model of a turbine wheel, for illustrating the lectures on turbines, and to form a permanent exhibit of one of our most important prime movers.

Another liberal donation is from the Westinghouse Air-Brake Co., of Pittsburgh, Pa., consisting of the air-pipe, main reservoir, auxiliary reservoir, brake-cylinder, pressure gauges, cocks, couplings and connecting hose, brake-lever and valve, and, excepting the driver-brakes, all needed equipment for an engine and tender as fitted up in actual railroad practice for passenger train service. These will serve the purpose of illustrating one of the most important and useful inventions of the country, so important as to have contributed greatly to the saving of human life. The apparatus will also provide a most valuable means for experimenting in th flow of air through tubes and orifices. It is hoped that new light may be added by these experiments to our present knowledge of this subject.

Another donation is from the Crosby Steam Gauge and Valve Company of Boston, consisting of an elegant nickel-plated standard pressure gauge, indicating pressures, lb. by lb., from 0 to 160 lbs. This is in skeleton form, and is thus all the more useful for illustrative purposes.

An elaborate lot of specimens of *Spiegel* ores have been received from the Fort Pitt Foundry and Steel-Works, of Pittsburgh.

The department has also been presented with a set of The Grinnell Sensitive Automatic Sprinkler and Fire Alarm, by the Providence Steam and Gas Pipe Co., of Providence, R. I. This sprinkler is a recently invented device for automatically extinguishing fires in compartments where a fire may originate.

Three models of mechanical movements have been added to the department cabinet by students of the Mechanism class.

Very truly, your obedient servant,

S. W. Robinson.

DEPARTMENT OF PHYSICS.

President W. H Scott:

SIR: I have the honor to submit the annual report of the Department of Physics for the college year ending June 20, 1883.

The students registered in this department during the year were classified as follows:

Second Year Preparatory	86
Sophomore Physics	19
Advanced Physics (Laboratory)	24
Total	129

As in the previous year, the large size of the Preparatory class rendered it necessary to divide the class into two sections, reciting at different hours. Indeed it would have been much better to have made three divisions instead of two; but such a course does not seem possible without great disturbance of the schedule of recitations and proportionately increased teaching force.

The Sophomore class in Physics was not only considerably greater in number than in the previous year, but it was noticeably better prepared for the work demanded of it.

The number engaged in work in the Physical Laboratory was too great for the best interests of the individual student, the facilities and appliances of the Laboratory often falling short of the demands made upon them.

While this increased demand is of itself encouraging, it is to be regretted that the Department is unable to respond to it with correspondingly increased facilities. One of the pressing needs is in the way of suitable rooms for laboratory work. This want has been partially supplied during the past vacation by the division and fitting up of the remaining room in the basement, thus furnishing two additional working rooms.

I desire to call your attention (and through you, that of the Board of Trustees) to the importance of largely increasing our appliances and facilities for instruction in Electricity.

The wonderfully rapid growth of Electricity as an applied science within the past few years, has rendered a certain knowledge of this subject a necessity to all well educated people, and a fairly thorough knowledge of it of prime importance to all who prepare to enter any one of the technical professions. Electrical Engineering is now recognized as a distinct and most promising branch of the general subject of engineering, and regular courses in it have been established in several of the best institutions in the country. The number of students already asking for special instruction in this subject is greater than can be provided for with our present facilities. Our institution must necessarily, from the very nature of its foundation, give great prominence to the practical applications of science, and it seems to me to be of the utmost importance that we should be immediately equipped with the means of giving thorough instruction in this young, but most vigorous department of Engineering. I trust that this subject will receive due consideration, and that suitable provision may be made to that end.

Serious inconvenience is experienced, owing to a lack of books of reference in connection with the physical laboratory. An allowance, for this purpose, of fifty dollars from the general library fund, was made by President W. Q. Scott, near the close of the year, and books have been ordered to this extent. A similar, or, if possible, a larger allowance ought to be made this year, and the general library ought to be furnished with complete sets of two or three of the most important scientific journals. The first of these, in my opinion, should be the American Journal of Science, a complete set of which can now be purchased on very favorable terms. I ask this, not in the interest of my own department alone, for it will be of equal value to all of the departments of science in the institution.

With the consent of the board of trustees, a room has been fitted up in the basement, for the use of the State Meteorological Bureau, of which I am, in virtue of my position as Professor of Physics, the director. This room is now occupied by the bureau, with Mr. E. H. Mark as Secretary. Although not connected with the University directly in any way, the establishment of the head-quarters of the weather-service at this place, and in connection with the physical laboratory, is indirectly of great value.

At the beginning of the year, Assistant Engineer F. H. Eldridge, U. S. N., was assigned to this department as assistant Professor of Physics. Professor Eldridge has done most of the work of the Preparatory Classes, beginning in January, and has assisted in directing the laboratory work. It is but fair to say that he has labored earnestly and conscientiously in the interest of the department.

I am, yours respectfully,

T. C. Mendenhall,

Professor of Physics.

Ohio State University, November 1, 1883.

DEPARTMENT OF MINING AND METALLURGY.

W. H. Scott, President:

DEAR SIR: I respectfully submit the following report on the work in my department for the past year. There were during the year classes in elementary mineralogy, determinative mineralogy, assaying, ore dressing, and metallurgy.

In the class in elementary mineralogy were fifty-two students, in the other classes fourteen, making sixty-six students in the department during the year.

The laboratory connected with the department has been occupied principally upon the work of the State Board of Agriculture and the Geological Survey. A large number of analyses have been made for the Survey, which will appear in the volume now being printed (Vol. V. Ohio Geological Survey).

During the summer the apparatus and collections of the department were moved into the new rooms provided for them. The new building is well arranged, and will greatly add to the efficiency of the department.

The appropriation made by the State for the expenses of the department has been about exhausted in supplying material for the new rooms. Some money will be needed this year to carry on the work. The collection of minerals especially needs replenishing, specimens being necessarily lost and injured during the constant handling they receive from students who study them.

Respectfully submitted.

N. W. LORD.

DEPARTMENT OF GREEK AND LATIN LANGUAGES.

W. H. Scott, President:

SIR: I have the honor to present the following annual report of the department of Latin and Greek for the college year 1882-83.

Four classes in Latin and three in Greek were maintained throughout the year; of these the classes in Sophomore Latin, Sophomore Greek, and Junior Greek, recited three times a week, the others daily.

The first preparatory class in Latin was divided into two sections; one, composed of beginners, was instructed by Miss M. O. Scott; the other, made up of those who had a slight acquaintance with the language, recited to me. The instruction of the second Preparatory class in Latin was again generously assumed by Prof. Orton, though the press of work growing out of the Geological Survey made it impossible for him to give the class his personal care for a part of the year.

The Sophomore class in Greek was entrusted to Mr. C. C. Miller, who had been the assistant in Greek the preceding year. The other classes were taught by myself. The work of the various classes was fairly well done and their progress creditable. The enrollment for the year was:

	1ST TERM.	2D TERM.	3D TERM.
Junior Greek	8	8	7
Sophomore Greek	4	4	4
Freshman Greek	19	9	7
Sophomore Latin	6	5	7
Freshman Latin	26	24	20
Second Preparatory Latin	39	34	30
First Preparatory Latin	59	53	47

No material changes in the method of instruction or course of study have been introduced since my last report, and no important additions have been made to the outfit of the department.

I wish to invite your attention and that of the Board of Trustees to the importance and, I may safely say, the necessity of strengthening the course in Latin by requiring in the near future some knowledge of that language of students upon their entrance into the preparatory department.

The time now given to the study of Latin in our prepartory department does not exceed *two-thirds* of the period devoted to the same subject in most of the high schools of the State, and is barely one-half as long a time as is allotted to it in the high schools of the larger cities—Cleveland, Columbus, Dayton, and Cincinnati.

This fact alone, without dwelling upon the large size of these elementary classes which would greatly gain by subdivision, shows plainly enough the disadvantage under which the department still labors. Nevertheless it is expected by our patrons and the public that the course of study here will be as full and as thorough as that offered by other institutions of similar grade. Some relief would be afforded by dividing the two preparatory classes into sections of twenty or less, but I do not believe that under even such conditions adequate preparation can be made in two years for the work of the Freshman year.

I would suggest that forthwith students who intend to enter the School of Arts and Philosophy, be recommended to come prepared to sustain an examination in Latin grammar and the first book of Cæsar. Such a requirement would not exceed what is at present demanded in mathematics here, or make the whole term of preparation for college in the language in question longer than that required by half a score of colleges in this State.

A small sum is needed for the purchase of maps and other illustrative apparatus; $50 would probably cover the cost of the most necessary articles.

The creation of a professorship of the Greek Language and Literature, and the selection of an accomplished scholar and experienced teacher to fill that chair add greatly to the strength of the classical department and are hailed by me with peculiar satisfaction.

Respectfully submitted.

SAMUEL C. DERBY,
Professor of Latin.

Ohio State University, November 1, 1883.

DEPARTMENT OF BOTANY AND HORTICULTURE.

President W. H. Scott:

Dear Sir: I have the honor to submit the following report of the Department of Botany and Horticulture for the year 1882–83:

INSTRUCTION.

The following tabulated statement presents the subjects taught, together with the number of hours devoted to each, and the number of students enrolled:

	Subject Taught.	No of Students.	No. of Lectures per week.	No. of hours of Laboratory or Field Work.
Fall Term, 1882.—	Economic Botany	10	5	..
	Composital and Gramineal	21	1	2
	Principles of Horticulture and Fruit Culture	3	5	2
Winter Term, 1883.—	Cryptogamic Botany	17	2	1
	Physiological Botany	2	5	..
	Vegetable Gardening and Seed Growing	2	3	2
	Arboriculture and Practical Forestry	3	2	3
Spring Term, 1883.—	Structural and Systematic Botany	107	4	3
	Special Botany (Soph.)	15	2	2
	Vegetable Histology and Botonical Field Work	3	1	5

I am teaching the following classes the present term:

Economic Botany	7
Compositæ and Gramineæ	17
Fruit Culture	4
Special Botany	2

The instruction is given almost exclusively by lectures, supplemented by frequent reviews, laboratory exercises, and more or less field work. I was only able to carry the work of last Spring, when the class in Structural and Systematic Botany numbered over one hundred, by the valuable and timely assistance of Mr. W. S. Devol and Mr. W. J. Green, two special students in this department.

MEANS OF ILLUSTRATION.

Some valuable additions have been made to the collection of illustrative material during the past year; the most important being a private Herbarium of Mr. J. A. Sanford, late of Toledo, Ohio.

This collection has been accepted upon the following terms, viz.:

(1.) One good specimen of each species is to be laid aside as Mr. Sanford's own collection, including *all* salices from Bebb of Illinois, and Brotherston of England.

(2.) Whenever 2, 3, or more specimens of species remain in the collection, one of them is to be sent to the Herbarium of the Michigan University, at Ann Arbor, the same to be disposed of as Professor Spalding shall see fit.

(3.) All that remains after the above selections, shall at once become the property of the Ohio State University.

(4.) The Univeristy to keep Mr. Sanford's collection and the four cases as his own property, until wanted by himself, or until he may make some other disposition of the same.

The whole number of species in this Herbarium is about 2,360. Of this number about 1200 species, and numerous duplicates, become the property of the University Although this collection furnishes the department much valuable material, it will require a vast amount of labor and no little expense to place it in the most available form.

THE NEW BUILDING.

The new building for the Department of Botany and Horticulture is rapidly nearing completion, and when finished will meet an urgent and imperative need. Its location is admirable, and for the purpose designed I believe it will prove a model of convenience. I trust there will be no delay in its complete equipment.

THE EXPERIMENT STATION.

This has proved a most valuable means of illustration and training. Much of the work done has been performed by students, and has had an educational value, besides being a means of self-support for those dependent upon their own exertions. As the station becomes more complete and thorough in its organization and equipment, its value as an educational factor in the University will be still further increased.

NEEDS OF THE DEPARTMENT.

Although the most urgent need of the department is being met in the new building and green-house, several minor, though none the less necessary, wants still exist. The most important of these are as follows:

(1.) A series of botanical models, maps and charts, for illustrating the subject of Botany.

(2.) Two compound, and six dissecting microscopes.

(3.) An assortment of botanical paper for mounting the specimens of the Sanford Herbarium.

(4.) An assortment of Horticultural hand-tools, budding-knives, grafting implements, pruning-shears, etc.

(5.) A small assortment of chemical re-agents, alcohol, poisons, etc., for preserving specimens.

An appropriation of three hundred and fifty dollars would meet these urgent demands, and would be amply repaid in the increased efficiency of the department.

Very respectfully yours,

WILLIAM R. LAZENBY,
Professor of Horticulture and Botany.

Ohio State University, November 8, 1883.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

OHIO STATE UNIVERSITY,
COLUMBUS, O., *November* 7, 1883.

W. H. Scott, President Ohio State University:

SIR: I have the honor to submit the following report of the department of the University in my charge for a period dating from November 14, 1882:

At that time there were two hundred and seven (207) students under military instruction. To this number six were added in January, 1883, at the beginning of the Winter term, and eleven at the beginning of the Spring term, in April, making a total enrollment in the department of two hundred and twenty-four during the school year, of whom one hundred and thirty-eight remained on the rolls at its close, June 20, 1883. Eighty-six students, therefore, dropped out of the ranks of the battalion during the year, either because they left the University, or were excused from drill.

At the opening of the present school year one hundred and seventeen members of the old battalion reported for military duty, and ninety-eight new students were enrolled, making a total of one hundred and ninety six, of whom one hundred and seventy-eight remain at this date.

Under existing rules, all male students, not members of the Senior and Junior classes, are required to take part in military drill, unless excused by the President for cause. The number of students thus liable to military instruction is, at present, two hundred and fifty-seven, showing that seventy-nine are absent. Of this number fifty-one, or twenty per cent. of the entire 257, are excused on the strength of certificates from physicians stating that, on account of various ailments and disabilities, they are physically incapacitated from undergoing the hardship and fatigue of fifty minutes' drill, four days per week, with a rifle weighing eight and three-quarters pounds. The authorities of the University, who are required to act on these certificates, cannot well do otherwise than accept them, since they have not the technical knowledge that would enable or authorize them to call in question the written statement of a physician in such cases. From the figures above given, it seems to me, only two inferences can be drawn, and these are, an alarming state of affairs as regards the physical condition of the young men of this State, or an easy conscience and carelessness on the part of physicians who sign their names to such certificates.

With the exception of the leather waist-belts, the small arms and equipments furnished by the United States for the use of the University are in fair condition. The waist-belts have been in use continually for about seven years, and many of them are so much worn as to make it impossible to keep them presentable. The carriages of the cannon belonging to the department, which appear to have been in use since 1864, are so much decayed as to make it unsafe to handle the guns, which are of the obsolete, six-pounder bronze pattern. The leather waist-belts should be exchanged for new belts and the cannon for guns of the wrought-iron three-inch rifle pattern—the latter being the kind authorized by regulations of the War Department to be furnished to the University.

The gun-racks authorized by the Board of Trustees last year have done excellent service, and greatly facilitate caring for and storing rifles in the armory. Acknowledgments are due in this connection to Cadet Lieutenant Charles H. Hirst, for the admirable manner in which he discharged the laborious duties of his position as Quartermaster and Ordnance Officer of the Battalion during the past school year. Notwithstanding the year's wear and tear, all the property belonging to the military department was in better general condition when, at the beginning of the present term, he transferred it to his successor, than was the case when it came into his care in September, 1882.

The course of instruction during the school year 1882 to 1883 was the continuation of the system heretofore followed, namely, practical drill on the college campus, in the school of the company and battalion; skirmish drills, company and battalion; dress-parades and reviews, and in the manual of arms, in the basement rooms and halls of the college building, when the weather did not admit of drill in the open air. Instruction in the manual of the piece in artillery was given to a limited portion of the battalion in the Spring of 1883. About thirty of the students belonging to the battalion reported to me voluntarily for duty on the State Fair grounds, from July 24th to 28th, to serve a four-gun battery, during the Re-union of Ex-Soldiers and Sailors, held in this city at that date. A most excellent opportunity was given on that occasion to impart to those present practical instruction in camp guard and police duty, and in mounted light battery drill. The guns for the purpose were furnished by the State of Ohio, and the horses, for two days, by the officers in charge of the re union. The duty required of the battery was performed in a manner highly satisfactory to the Commanding Officer of the camp.

Under the invitation of the gentlemen having the matter in charge, and with the consent of the faculty, the battalion took part in the military parade and exercises held here on Decoration Day. On this as well as on previous public occasions of a like nature, the students of the battalion have always acquitted themselves creditably, in a military point of view, and not a single instance of misconduct on their part has ever come under my observation or been brought to my notice. The benefit that has resulted to the young men directly, and to the University indirectly, from their participation in the public exercises referred to, has been ample compensation for the time given to them.

In addition to the practical exercises in military drill, theoretical instruction in infantry tactics is also given to any student who desires to receive it. During the continued severe weather of last Winter, I took occasion to give to the battalion, assembled in the lecture-room, some outline sketches of army organization, and other matters pertaining to my department of instruction, instead of the usual in-door manual drills. Instruction of the same nature is given throughout the several terms to any students who desire to attend the lectures. Attendance upon any of the military classes is, of course, entirely voluntary on the part of students, there being at present no time or place assigned to them on the college curriculum. I require a certain standard of theoretical knowledge of tactics, as a requisite for appointment to the lowest grade of non-commissioned officers and a relatively higher standard in every successive step of promotion, until the highest grade of company officer is reached. This method secures a knowledge of tactics, at least, on the part of those filling positions as cadet officers. Other qualifications, of course, are also necessary.

One member of the Senior and several students of the Junior class voluntarily continue with the battalion, and on account of their long experience and excellent qualifications, their services are this year of greater benefit than ever before.

I enclose herewith a list of the officers and non-commissioned officers of the battalion, as at present organized, and ask, if thought proper, that it may be published as a part of this report:

Field and Staff—

Major—J. T. Anderson.
Adjutant—Capt. W. L. Peters.
Quartermaster—2d Lieut. H. T. Stephens.
Sergeant-Major— ————.
Quartermaster-Sergeant — ————.

Unassigned to Companies—

Buglers—B. A. Eisenlohr, H. M. Gates.
Battalion Markers—Corporal J. R. Taylor, Seth Hayes, F. W. Schmidt, J. G. Boyd, W. H. Mullay, R. Ling.

Company A—

Captain—Wm. Neil, commanding.
1st Lieutenant—C. S. Amy.
2d Lieutenant—U. H. Myers.
1st Sergeant—W. H. McKinney.
(Sergeants not yet appointed.)
Corporals—Laundon, Dyer, Fox, and thirty-one privates.

Company B—

Captain—L. A. Hine, commanding.
1st Lieutenant—W. W. Keifer.
2d Lieutenant—E. J. Converse.
1st Sergeant— ————.
Sergeant—Otto Schroll. (Other Sergeants not yet appointed.)
Corporals—Scheibell, Dunlap, Patchell and Zaumseil, and forty-two privates.

Company C—

Captain—George R. Twiss, commanding.
1st Lieutenant—F. A. Taylor.
2d Lieutenant—George S. Cunningham.
1st Sergeant— ————.
Sergeant—J. L. Gordon. (Other Sergeants not yet appointed.)
Corporals Iuen, Willim, McPherson and Woolf, and forty-two privates.

Company D—

Captain—H. L. Stockwell, commanding.
1st Lieutenant—M. T. Dozer.
2d Lieutenant—S. B. Beebe.
1st Sergeant—Arthur O'Harra.
(Sergeants not yet appointed.)
Corporals—Maetzel and Whiteman, and twenty-seven privates.

Very respectfully,

GEORGE RUHLEN,

1st *Lieutenant* 17th *Infantry, U. S. A., Prof. Military Science and Tactics.*

DEPARTMENT OF STEAM ENGINEERING.

W. H. Scott, President:

SIR: I have the honor to report that, by arrangement with Professor S. W. Robinson, and with your approval, a class in steam engineering was organized for work during the present term, to count as two-fifths of a study in the Mechanical Engineering course. This class is composed of six students, and the limited time allotted has been employed by them in the study of fuels and combustion, together with some consideration of the properties of steam and the principles of steam generation. I take pleasure in testifying to the interest and diligence of the class in the study.

In view of the provision made by the general government for instruction in steam engineering in this institution, I would most respectively recommend that the study be assigned a definite place in the courses of study, either by incorporating it as accessory to the Mechanical Engineering course, or as a course in itself.

Very respectfully submitted.

FRANK H. ELDRIDGE,
Assistant Engineer U. S. N.

Ohio State University, November 15, 1883.

DEPARTMENT OF FRENCH AND GERMAN.

W. H. Scott, President:

SIR: I have the honor to submit the annual report of the department ot French and German languages. I have four classes—two in French and two in German. The enrollment last year in each class was as follows:

Sophomore French	14
Freshman French	53
2d Preparatory German	18
1st Preparatory German	50

Last year I introduced into the French course of the Freshman year a grammar in the French. This was done to give the student in the beginning of his study an insight into the practical use of the language, and to enable him to read immediately easy French, in order that he might hasten to a more advanced study of the language. The work that was accomplished the past year through this method was such as to encourage its continuance this present year.

Several years ago the German was placed in the preparatory course for two very good reasons, that the student might have the benefit of a language-study this early in his college work, and that he might be benefited by a study of a language so much used in this country. No one knows how much or how little he knows of his own language until he has studied a foreign. During the years that I have been a teacher here, the necessity of studying another language in order to know well one's own, has been shown to me many times. The very difficulty that a student meets who starts to acquire a foreign langugage for the first time shows this. Many times students have said to me, "I cannot get along very well at present, for I never studied a language before." Thus do we study our own speech without knowing that we are studying one. But when we are compelled to examine the meaning of that grammatical phraseology which has so often rung in our ears, when we have considered the reason for each step we take, then do we really begin to study a language. No young person does this until he has studied a foreign language, and if a mature student does it merely with his own, his knowledge when gained is restricted and narrow. In addition to this use which may be considered limited to the special student, there is that use which is ever increasing and which may be thought the more practical one to be derived from a study of the modern languages, the use in the world of business and in the affairs of government.

Respectfully submitted.

ALICE K. WILLIAMS,

Inst. French and German.

THE LIBRARY.

W. H. Scott, President:

SIR: I submit the following report upon the condition and needs of the library:

The number of volumes, exclusive of pamphlets, belonging to this department, June 20, 1883, was 2,402. The number of books added to the library during the year ending at that date, 367. A few of these came by gift, but the great majority were purchased to meet the wants of the various departments. To this class belong the Teubner Greek and Latin classics mentioned in the last annual report (p. 28), and a selection of about 80 valuable works from the library of the late Professor Millikin, treating chiefly of ethics, mental philosophy, and political economy. A few excellent treatises on English literature and the science of language have been procured. It is a matter for regret that so few of the great English and American writers are represented at all upon the shelves of the library.

In accordance with the custom of preceding years a small selection of periodicals which, so far as they go, fairly represent current literature, has been kept on file for the use of students. The list comprised:

The North American Review, Nineteenth Century, Contemporary Review, Academy, Magazine of American History, Littell's Living Age, American Journal of Science, Journal of the Chemical Society, Van Nostrand's Engineering, Scientific American, American Machinist, Nature, and Mind.

Several other publications, *The Iron World, Manufacturer, Protectionist, New York Witness, Gazette of the Patent Office*, etc., have been furnished by the kindness of the publishers, or friends.

The shelf-room of the library is now fully occupied; several compartments are so much crowded as to injure the binding of the volumes whenever they are taken from the shelf or returned to it, and much valuable material has been stored in the cupboards below the cases proper, a location which keeps it out of mind no less than out of sight.

The greater portion of the books are in decent condition and give evidence that they have been carefully treated; a few are so badly worn by much use as to need rebinding. This is particularly true of several of the earlier numbers of the new edition of the Encyclopædia Britannica. The entire set of this work needs a plain and strong binding, otherwise some of the volumes must soon be withdrawn from use to prevent their falling to pieces. Good policy would seem to demand that the more valuable of the periodicals should be bound and thus continue to be of service. Many of the articles contained in them will presently appear in book form and are a positive addition to the field of knowledge, or contribute not a little to the settlement of important questions in morals, statesmanship, or science.

The *first* need of the Library is *more room.*

It must evidently serve in the future even more than now, not merely as a place for the preservation of books and reference to them, but also as a reading-room and convenient resort for study, especially on the part of the more advanced students. In its present quarters the deficiency of room is aggravated a considerable part of the year by lack of light. Another evil is the ease with which the rules for the registration of books are neglected. Without such rules no collection of books, open to any considerable number of persons, can be kept secure. It is practically impossible to allow 350 students that freedom in the use of the Library which was properly and safely given to 50.

The Library ought speedily to be removed to a much larger and better-lighted apartment, where its safety and usefulness, together with the convenience of those who consult its volumes, may readily be secured in far greater measure than is now practicable.

The *great* need of the Library is *books.*

It is the merest commonplace to say that this department should be the coworker with every other department of the University, and that its aid grows more valuable, its co-operation more essential, as the student advances.

One of the noteworthy facts in modern higher education is the prominence which the Library assumes. To no other appliance have the best educational institutions of the country lately given more attention.

Not to mention the 150,000 volumes in the Library of Yale, or the quarter of a million in the various libraries of Harvard, many more recent colleges have large collections of books, notably Cornell and the University of Michigan. For the latter the State has lately erected a spacious building, at large expense, to accommodate the 44,000 volumes, not including some 10,000 pamplets, to which the 1,500 students of that institution have access. This generosity appears not of sudden growth, but the outcome of a deliberate and judicious policy. The Legislature of Michigan has given to the Library of its State University, since 1877, not less than $2,000 annually, usually $2,500, while the amount for this year and next is $7,500 a year.

The State Library, the largest collection of books accessible to our students, is too remote from the University ever to serve as its library, however courteous the State Librarian and Assistant Librarian may be. We need a *college* library, i. e., works selected with special reference to the needs and studies of the various courses of training offered at the University. Such a library will not of necessity be very large, but it must be somewhat costly. The 20,000 volumes of the University of Rochester have cost $40,000; and the average cost per volume of the Johns-Hopkins library has been nearly three dollars.

No special or miscellaneous collection of books is likely to serve the purpose of students in all the lines of inquiry covered by our various courses of study. Our library must be a growth adapted to our own needs. A large sum is needed to purchase the nucleus of a University Library.

Such are the dictionaries, gazetteers and encyclopædias in which modern literature is so rich, the master-pieces of ancient and modern times in the various languages, sets of the most celebrated periodicals in science and literature, and of the transactions of various societies of our own and foreign countries. Such books must always form the basis of the ideal college library, and many of them are becoming more rare and expensive year by year.

Again, not less than $500 a year should be expended in the purchase and binding of a considerable number of the best scientific and literary periodicals, American and foreign, keeping in view the wants and claims of the different departments of the University. This plan would not merely keep us well abreast with the growth of knowledge and the progress of speculative thought, but very soon yield a considerable number of volumes of permanent value. Such a measure would have, I believe, the cordial support of every member of the faculty.

It hardly need be said that the Library should be made, as soon as possible, a separate department of the University, under the charge of a competent and well-trained librarian, who should be chargeable with the administration of its affairs, except in the selection of books, in which the various instructors ought to be consulted; or his purchases might be guided by a Library Committee composed of members of the faculty. This arrangement would insure symmetry in the development of the diverse elements which must be recognized in such a collection, and maintain interest in this indispensable adjunct of the University.

The courteous and zealous service of Miss M. E. Bird, Assistant Librarian, for 1882–83, deserves recognition.

Very respectfully yours,
SAMUEL C. DERBY.

Ohio State University, November 1, 1883.

TREASURER'S REPORT.

Columbus, Ohio, *November* 15, 1883.

Hon. T. Ewing Miller, *President of the Board of Trustees of the Ohio State University:*

Dear Sir: Herewith is the thirteenth annual report of the Treasurer of the University for the fiscal year ending this day.

The order of the report is the same as heretofore, and includes—

I. A general cash statement, showing receipts, expenditures and balances.

II. The cash transactions relating to the sale of the Virginia Military Lands, ceded to the University, from 1871 to date.

III. A full statement of the Endowment Fund, held by the State and pledged to the support and maintenance of the University.

IV. A detailed statement of the cash received, from whatever source, into my hands during the current year.

V. A detailed statement of the disbursements for the same period, followed by a list of officers and employes, and the salaries of each, and a statement of the minor appropriations made by the Board of Trustees.

Owing to the confusion and misinterpretation of the Endowment Fund, on account of the dates to which the interest is required by law to be calculated, I most respectfully repeat the recommendation, made to the General Assembly last year, for the amendment of section 8446 of the Revised Statutes, so that the calculations of interest may be made to conform to the fiscal year of the State; that the interest be computed to the 15th of May and November annually, instead of 1st of January and July, as at present. This recommendation was also made by the Auditor of State, but, I regret to say, it was unheeded.

All of which is respectfully submitted.

Henry S. Babbitt, *Treasurer.*

STATEMENT I.

A GENERAL STATEMENT OF THE CASH ACCOUNTS FOR THE FISCAL YEAR ENDING NOVEMBER 15, 1883.

HENRY S. BABBITT, *in account with Ohio State University:*

DR.

Nov. 16, 1882.	To balance of cash on hand			$4,513 41
	To cash from various sources, as follows, viz:			
	From the State Treasury on account of the income of the Endowment Fund, being balance of interest accrued to July 1, 1882	$12,000 00		
	Interest accrued from July 1, 1882, to January 1, 1883	16,755 87		
	On account of ($16,755.87) the interest accrued from January 1, 1883, to July 1, 1883	13,755 87		
	Total interest received		$42,511 74	
	From the State Treasury, the amount appropriated toward paying the expenses of the Board of Trustees	$450 00		
	From the State Treasury, the balance of appropriation for 1882 for Ordinary Repairs	126 32		
	From students' term bills for Winter term, 1882-3	1,926 00		
	Spring term, 1883	1,661 00		
	Fall term, 1883	1,968 50		
			$5,555 50	
	From proceeds of notes received for sale of Virginia Military Lands	$4,761 48		
	Interest on such notes	830 09		
	Sale of Virginia Military Lands	690 72		
			$6,282 29	
	From rent of houses:			
	President W. Q. Scott	$244 00		
	Professor Townshend	300 00		
	Professor Derby	240 00		
	Professor McFarland.	90 00		
	Professor Mendenhall	120 00		
			$994 00	
	From Prof. Norton for sale of supplies to students		213 00	
Total receipts during the year				$56,132 85
Total receipts, including above balance				$60,646

Contra, Cr.

Nov. 15, 1883.	By disbursements as follows (for particular items, see detailed statement V.):		
	For support and maintenance of the University, viz.:		
	For salaries of faculty, teachers, assistants, other officials and regular employes	$31,854 65	
	For expenses of Board of Trustees	482 85	
	fire insurance (residences)	63 00	
	fuel	1,860 70	
	telephone service	126 00	
	other current expenses	1,868 85	
			$36,256 05
	For department supplies	$2,401 43	
	furniture not included in dep't supplies	763 17	
	library	668 15	
	farm and lawn expenses	2,112 23	
	improvements	2,808 46	
	repairs	1,562 24	
			$10,315 68
	For expenses incident to the Va. Military Lands	$722 79	
	account of construction of three residences	10,311 25	
	Paid from net proceeds of the Va. Military Lands sales		$11,034 04
Total disbursements			$57,605 77
Balance of cash on hand this day			3,040 49
Total receipts, as above			$60,646 26

STATEMENT II.

Virginia Military Land Sales.

The cash receipts into the college treasury from the proceeds of the sales of these lands, as reported to November 15, 1882 (page 103 of 12th annual report), were		$48,158 01
Receipts during fiscal year, 1883		6,282 29
Total receipts to November 15, 1883		$54,440 30
Total expenses on this account to November 15, 1882, as stated in the last annual report	$19,129 06	
Expenses in 1883	722 79	
Total expenses to date		$19,851 85
Balance showing net receipts to date		$34,588 45

Of this amount there was paid into the State Treasury to the credit of the endowment fund (in compliance with Section 3433 of the Revised Statutes) June 29, 1880......	$12,073 28	
And the sum certified to by the Auditor of State pursuant to Joint Resolution of the General Assembly, adopted April 24, 1877..	1,592 56	
Total paid into the endowment fund........................		$13.665 84
Leaving net cash proceeds to date		$20,922 61
Out of this sum there has been expended for the construction of three residences upon the College grounds (see the reports of 1882 and 1883 for details) the sum of..		$16,646 26
Leaving amount still subject to appropriation by the board............		4,276 35

STATEMENT III.

Showing the Amount of the Ohio State University Endowment Fund, Computed in Accordance with the Provisions of the Act passed February 10, 1870, O. L. Vol. 67, p. 15, and Sec. 3446, Revised Statutes.

Amount of (apparent) principal, as reported last year, to July 1, 1882 was..		$558,529 00
Add interest on this amount, to January 1, 1883................	$16,755 87	
Making	$575,284 87	
Deduct amount drawn from State Treasury, from July 1, 1882 to January 1, 1883..	$17,660 40	
Leaving (apparent) principal, January 1, 1883....................	$557,624 47	
Add interest on this sum to July 1, 1883		16,728 73
Making		$574,353 20
Deduct amount drawn during same period of six months, January 1 to July 1, 1883		19,755 87
Leaving (apparent) principal July 1, 1883..		$554,597 33
By deducting the amount of the requisitions upon the State Treasury for interest issued June 30, 1883, viz..		16,755 87
We have the sum of		$537,841 46

As the *actual* (not apparent) principal of the Endowment Fund held by the State of Ohio for the University at the date of July 1, 1883, a sum which cannot be diminished. The usual statement made in former reports, explaining that the amount named as principal was only apparent, has been an annual source of annoyance; the different method of stating the account will result in some diminution of the interest account. Interest upon the above amount ($537,841.46), calculated according to requirements of sections 3433 and 3446 of the Revised Statutes, for the year 1883-1884, payable in equal sums January 1, 1884 and July 1, 1884, will amount to $32,290.48.

Requisitions for the sum above named as the interest to July 1, 1883, viz., $16,755.87, were in my hands at that date, subject to the authorized uses of the University, and all of the same has been drawn from the State Treasury since that date, except $3,000, which I still hold, against $12,000 of similar requisitions which remained in my hands at the corresponding date last year, as shown upon page 105 of the 12th annual report.

Note.—If this computation had been made to the close of the fiscal year as proposed last year, as approved by the Board of Trustees, upon page 16 of the 12th annual report, and as recommended to the General Assembly by the Auditor of State (and which it is to be hoped will be enacted into law at the next session of the Legislature), the statement would have been as follows:

Amount of principal of Endowment Fund, July 1, 1882	$558,529 00
Add interest on this to November 15, 1882	12,566 90
Making	$571,095 90
Deduct amount drawn from State Treasury during same period	8,660 40
Leaving	$562,435 50
Add interest on this sum, to May 15, 1883	16,873 06
Making	$579,308 56
Deduct amounts drawn from State during same time	25,755 87
Leaving	$553,552 69
Add interest on this sum, to November 15, 1883	16,606 58
Making	$570,159 27
Deduct amounts drawn from May 15 to November 15, 1883, including requisition for $3,000	19,755 87
Leaving actual balance of the Endowment Fund in the State Treasury, at this date	$550,403 40

STATEMENT IV.

SHOWING IN DETAIL THE CASH RECEIPTS FROM ALL SOURCES DURING THE FISCAL YEAR ENDING NOVEMBER 15, 1883, BY HENRY S. BABBITT, TREASURER.

Date.	From whom received, and on what account.	Amount.	Total.
1882.			
Nov. 16	Balance of cash from last year		$4,513 41
17	Lawrence C. Moon, Va. Military Land, note	$35 00	
	C. A. Barton, " sales	141 00	
			176 00
	State Treasury, bal. of appr'n for ordinary rep'rs.		126 32
25	Wm. M. Warmsley, Va. Mil. Land, note	$85 00	
	" " interest	63	
	Wm. M. Stevenson, " note	25 00	
	S. A. Bond, by J. McGrew, Va. Mil. Land, note	25 00	
	Prof. S. C. Derby, house rent	20 00	
			155 63
29	State Treasury, income on endowment		3,000 00
Dec. 8	L. C. Moon, bal. due Va. Mil. Land, interest	$ 85	
	G. C. Bryan, " interest	1 00	
	Lafayette Brown, " note	6 75	
	" " interest	17	
	Vincent Beaver, " note	32 47	
	" " interest	7 79	
	Jas. G. Freeman, " note	100 00	
			149 03
	State Treasury, income on endowment		3,000 00
18	Amos Jenkins, Va. Mil. Land, notes	$100 00	
	" " interest	12 00	
			112 00
22	Johnson Allen, " notes (2)	$48 11	
	" " interest	5 76	
			53 87
27	State Treasury, income on endowment		3,000 00
1883.			
Jan. 15	J. F. Miles, Va. Mil. Land, notes (3)	$14 95	
	" " interest	3 92	
			18 87
	Miller, Bunn & Shinn, Va. Mil. Land, notes (2)	$122 22	
	" " interest	36 00	
	C. A. Barton, " sale	16 00	
	Stephens & Bilyew, " note	19 83	
	" " interest	2 45	
	Milton Hart, " notes (5)	146 66	
	" " interest	34 49	
	J. G. Noel, " note	40 00	
			417 65
29	Stephens & Bilyew, " note	$19 80	
	" " interest	2 45	
	Ezekial East, " note	50 00	
	Elijah M. West, " note	20 00	
	Prof. S. C. Derby, house rent	40 00	
			132 25
31	State Treasury, income on endowment		3,000 00
Feb. 2	James Groom, Va. Military Land, notes (3)	$78 00	
	" " interest	14 75	
	C. A. Barton, " sale	10 00	
	Henry Morten, " notes (7)	384 22	
	" " interest	46 24	
			533 21
23	Andrew Pollock, " note	$18 14	
	" " interest	1 41	

STATEMENT IV—Continued.

Date.	From whom received, and on what account.	Amount.	Total.
1883.			
Feb. 23	Wm. Copas, Va. Military Land, notes (2)........	$36 60	
	“ “ interest	6 95	$63 10
28	State Treasury, income on endowment..................	....	4,755 87
March 5	Prof. S. C. Derby, house rent................................	$20 00	
	Pres't W. Q. Scott, “	70 00	
	Isaiah Burns, Va. Military Land, note................	20 00	
	“ “ interest...........	2 00	
	M. J. & J. A. Reed, “ note................	60 00	
	R. H. Justice, “ note................	124 50	
	“ “ interest...........	15 00	
	W. M. Stephenson, “ note..........	38 00	349 50
	J. B. Fleming (by P. Butler), V. M. Land, note......	$28 00	
	J. W. McCrory, “ note......	11 16	
	“ “ interest..	2 44	
	J. G. Noel, “ note......	50 00	91 60
10	E. M. West, (balance) “ interest..	$2 55	
	R. G. Smeltzer, “ note......	21 00	
	“ “ interest..	4 00	
	J. R. English, “ note......	67 45	
	“ “ interest..	7 41	
	Miller, Bunn & Shinn, “ notes (3)	73 35	
	Miller & Bunn, “ notes (3)	106 65	
	“ “ int'st (6)	30 46	312 87
16	R. W. McFarland (Bursar), Winter term bills—		
	Incidentals..	$1,521 00	
	Chemical Laboratory fees............................	250 00	
	Physical “	126 00	
	Stall-rent	29 00	1,926 00
	W. H. Overman, Va. Military Land, notes (3)......	$77 25	
	“ “ interest......	5 02	
	R. R. Samuels, “ notes (2).....	112 90	
	“ “ interest......	53 60	
	J. G. Freeman, “ interest......	26 00	
	R. G. Smeltzer, “ note...........	21 00	
	“ “ interest......	3 20	298 97
20	H. W. Overman, “ note...........	$37 73	
	M. D. Hibbs, “ note..........	73 75	
	“ “ interest......	6 25	
	C. A. Barton, “ sales	150 37	268 10
28	H. C. White, “ notes..........	$80 00	
	“ “ interest......	9 65	
	C. L. Brown, “ notes (3).....	123 75	
	“ “ interest......	19 85	233 25
30	State Treasury, income on endowment	....	3,000 00
April 4	J. A. Reed, Va. Mil. Land, note..........................	$41 00	
	Prof. S. C. Derby, house rent............................	20 00	
	Pres. W. Q. Scott, “	70 00	131 00
5	State Treasury, income on endowment	....	3,000 00
17	same	....	3,000 00

STATEMENT IV—Continued.

Date.		From whom received, and on what account.	Amount.	Total.
1883.				
May	4	E. Tucker, V. Mil. Land, sale to P. Butler	$2 00	
		" " " J. Harness	8 00	
		G. W. Brown, Va. Military Land, notes (2)	250 00	
		" " interest	13 13	
		J. F. Miles, " notes (9)	1,009 71	
		" " interest	264 20	
		" " notes (3)	508 53	
		" " interest	139 24	
		Leroy Moss, " note	14 00	
		" " interest	1 50	
		Prof. S. C. Derby, house rent	20 00	
				$2,230 31
	8	O. & M. McAfee, Va. Military Land, note	$14 40	
		" " interest	10 60	
		Wm. Wykoff, " interest	9 00	
		James Holton, " note	14 37	
		" " interest	5 63	
		Prof. N. S. Townshend, house rent	300 00	
				354 00
	23	Prof. W. Q. Scott, house rent	$77 00	
		Erasmus Tucker, Va. Mil. Land, note	29 62	
		" " interest	5 68	
				112 30
	30	R. W. McFarland (Bursar) spring-term bills—		
		Incidentals $1,355 00		
		Chemical Laboratory fees 200 00		
		Physical " 91 00		
		Stall-rent 15 00		
			$1,661 00	
		E. Tucker, V. Mil. Land, sale to J. A. McMurray	20 00	
				1,681 00
June	15	David Green, Va. Military Land, note	$140 15	
		Mrs. B. Allen Taylor, " note	13 50	
		" " interest	75	
		Johnson Allen, " note	30 30	
		" " interest	90	
				185 60
	20	State Treasury, income on endowment		6,000 00
	26	Prof. T. C. Mendenhall, house rent, June	$40 00	
		" S. C. Derby, house rent, May and June	40 00	
		" S. A. Norton, sale of chemicals	213 00	
		H. W. Overman, on account of, and to balance, notes for V. Mil. Lands to W. Webster, dec'd	40 00	
				333 00
	28	E. Tucker, bal. due on sale of lots 13, 14 and 15, V. Mil. Land, in Scioto Co	$260 65	
		Michael Hunn, Va. Military Land, note	4 00	
				264 65
July	18	State Treasury, income on endowment		3,000 00
Sept.	5	Pres. W. Q. Scott, bal. due on house rent to Sept. 1. $77.00; less $50.00, allowed by Board June 20, 1883		27 00
		State Treasury, income on endowment		1,755 87
Oct.	13	Prof. S. C. Derby, house rent to Oct. 1	$60 00	
		" R. W. McFarland, rent, 1st tenth	45 00	
		" T. C. Mendenhall, " "	40 00	
		Erasmus Tucker, balance on sale of part of lot 17, Scioto Co. Va. Military Land	82 70	
				227 70

STATEMENT IV—Continued.

Date.	From whom received, and on what account.		Amount.	Total.
1883.				
Oct. 15	State Treasury, income on endowment			$3,000 00
31	R. W. McFarland (Bursar), fall-term bills—			
	Incidentals	$1,652 50		
	Chemical Laboratory fees	170 00		
	Physical "	112 00		
	Stall-rent	34 00		
			$1,968 50	
	Prof. McFarland house rent, 2d tenth		45 00	
	" Mendenhall, " 3d "		40 00	
	Robt. Smith, Va. Military Land, note		31 00	
	" " interest		8 10	
	Jno. W. McCoy, " note		11 16	
	" " interest		2 72	
				2,106 48
	State Treasury, income on endowment			3,000 00
Nov. 9	State Treasury, amount appropriated for expenses of Trustees			450 00
10	Wm. M. Wormsley, Va. Mil. Land, note		$72 50	
	" " interest		4 35	
	M. Hart (balance), " note		3 00	
	Prof. S. C. Derby, house rent		20 00	
				99 85
	Total receipts this year, including balance $4,513.41 of cash on hand, Nov. 16, 1882			$60,646 26
	Total disbursements for the same period (see Statement V. for details			57,605 77
	Balance, being amount of cash on hand November 15, 1883			$3,040 49

STATEMENT V.

A DETAILED STATEMENT OF DISBURSEMENTS, BY HENRY S. BABBITT, TREASURER, DURING THE FISCAL-YEAR ENDING NOVEMBER 15, 1883.

Date.	No. of Order.	To whom paid.	For what purpose.	Amount.
1882.				
Nov. 16	371	C. A. Barton	Salary and expenses, V. M. Lands, to date	$223 12
7	372	Jas. Kelley	Lawn keeper, 2 months	70 00
	373	S. H. Ellis	Trustees Expenses	16 55
	374	Alston Ellis	“	16 00
	375	T. J. Godfrey	“	31 25
	376	J. B. Jamison	“	26 85
18	377	L. B. Wing	“	10 00
	378	Siebert & Lilley	Blankbook & envelopes	90 15
	379	Paul A. Gavey & Co	Models for Art Dept	23 50
	380	Col. Steam Pipe Works	Pump and pipes	14 10
	381	O. S. Journal Co	Printing catalogues, etc	41 50
	382	A. H. Smythe	Library (books)	84 58
	383	G. M. Maris & Co	Nails for repairs	23
	384	F. C. Ashinger	Glazing	1 00
	385	Myers Bros	Examination papers	7 75
	386	C. S. Amy	Work and repairs	4 50
	387	Asa Gray	Flora Braziliensis	15 65
	388	L. Prang & Co	Art models	7 83
	389	S. E. Samuel	Oil-tanks	24 50
	390	S. A. Norton	Chemicals	608 83
	391	F. E. Powell	Lumber	3 78
	392	Edwin Alden & Bro	Advertising	191 50
	393	W. A. Hershiser	Lumber and repairs	22 82
	394	A. S. W. Huffman	Pump and repairs	1 50
	395	Jno. Shea	Lard oil	71 80
	396	Col. Transfer Co.	Freight and drayage	47 12
	397	Wm. Brotherton	Tile and sewer work	111 77
	398	J. & H. Berge	Supplies Mining Dept	33 53
	399	Halm, Bellows & Co	Pigeon-hole case	5 00
	400	D. Brotherton	Lawn work	67 65
	401	Geo. Rhoades	Hauling gravel	47 12
	402	Thos. Thompson	“	78 50
	403	Jacob Rhoades	“	17 60
	404	D. Rhoades	“	20 80
18	405	Jacob Hainbarger	“	17 00
	406	John Wells	“	15 80
	407	Jas. Ohlen	“	18 80
	408	Richard Hoem	“	13 20
	409	Ohio Coal Exchange	92 38-2000 tons coal	189 38
	410	David O'Brien	Sal. Asst. in Chemistry	30 00
20	411	Geo. W. McCoard	“ Math	150 00
	412	A. D. Selly	“ Phys. Geog'y	30 00
	413	Robt. Wood, Contractor	5th estimate on residences	981 90
25	414	W. A. Mason	Salary for November	140 00
	415	John T. Short	“	225 00
	416	R. W. McFarland	“	225 00
	417	S. C. Derby	“	225 00
	418	Geo. Ruhlen	“	50 00
	419	W. Q. Scott	“	275 00
	420	S. A. Norton	“	225 00
	421	N. S. Townshend	“	225 00

STATEMENT V.—Continued.

Date.		No. of Order.	To whom paid.	For what purpose.	Amount.
1882.					
		422	S. W. Robinson	Salary for November	$225 00
		423	T. C. Mendenhall	“	225 00
		424	Nat. W. Lord	“	100 00
		425	W. R. Lazenby	“	200 00
		426	M. Dillon	“	83 33
		427	Alice Williams	“	80 00
	28	428	M. Suzuki	Asst. Dept. Physics	30 00
Dec.	1	429	A. C. Hirst	“ in Languages	75 00
	4	430	Robert Wood	6th est. on residences	1,134 00
	5	431	E. A. Kirk	Carpenter work	6 86
		432	S. A. Norton	Chemicals	107 44
		433	Walter G. Shotwell	Ack'dg. deeds V. M. Lands	2 00
		434	Jas. Kelley	Lawn keeper	35 00
		435	Geo. Rhoades	Hauling and labor	93 00
		436	Gustave E. Stechert	Latin Classics	190 00
		437	Ward & Howell	Geology models	50 00
		438	F. C. Ashinger	Carpentry	6 85
		439	Geo. W. Gleason	Books and stationery	102 70
	8	440	S. C. Derby	Express on books (classics)	3 50
	15	441	Albert Allen	Salary to date	125 00
	20	442	W. Q. Scott	“ for December	275 00
		443	S. A. Norton	“	225 00
		444	N. S. Townshend	“	225 00
		445	R. W. McFarland	“	225 00
		446	S. W. Robinson	“	225 00
		447	N. W. Lord	“	100 00
		448	John T. Short	“	225 00
		449	S. C. Derby	“	225 00
		450	W. R. Lazenby	“	200 00
		451	Geo. Ruhlen	“	50 00
		452	W. A Mason	“	140 00
		453	Alice Williams	“	80 00
		454	M. Dillon	“	83 33
		455	D. O'Brien	Asst. in Chemistry	40 00
		456	A. C. Hirst	“ Latin	75 00
		457	W. H. Miller	“ Phys. Geog'y	25 00
		458	Minnie E. Bird	“ Librarian	16 66
		459	A. D. Selby	“ Phys. Geog'y	20 00
		460	J. P. Milligan	“ President's room	25 00
		461	H. L. Wilgus	“ Physiology	150 00
		462	G. W. McCoard	“ Mathematics	150 00
	22	463	H. S. Babbitt	Salary as Treasurer	50 00
1883.					
Jan.	3	464	Col. Post Office	Postage for Trustees	47 48
		465	Robert Wood	7th estimate on Residence	630 00
	4	466	C. C. Green	Ass't. in Zoology	35 00
	11	467	Geo. Rhoades	7½ days' labor	11 25
		468	Bowe & Beggs	Matting and carpets	90 46
		469	J. B. Jamison	Trustees expenses	19 60
		470	A. H. Smythe	Reviews, etc., Literary	56 55
		471	S. W. Robinson	Encyclopædia	18 00
		472	Geo. W. Gleason	Poole's Index	18 50
		473	Ohio Coal Exchange	Coal	282 61

STATEMENT V.—Continued.

Date.		No. of Order.	To whom paid.	For what purpose.	Amount.
1883.					
Jan.	11	474	Thos. A. Cowgill	Trustee expenses	$14 80
		475	Stitt, Price & Co	Lime	1 65
		476	G. J. Brand & Co	Printing	6 80
		477	Edward Hughes	4 days' labor and repairs	12 00
		478	Wm. Halley	Pump and repairs	14 84
		479	J. W. Queen & Co	Phys. lab'y supplies	73 50
		480	Col Transfer Co	Freight and drayage	15 14
		481	J. P Milligan	Supplies for Presid'ts room.	4 85
		482	Col. Brass & Steam P. Wk's.	“ Mech'l Dep't	8 11
		483	Albert Allen	Exp. charges and ink	1 60
		484	T. D. Sweeney	Care of gates	5 00
		485	N. E. Lovejoy	Lumber	3 48
		486	Edward Orton	Exp. charges	7 10
		487	T. C. Mendenhall	Telescopes, coil, etc	58 95
		488	W. U. Telegraph Co	Messages	1 05
		489	Kilbourne, Jones & Co	Supplies mech'l dep't	11 85
		490	Midland Telephone Co	Rent of telephones	25 00
		491	Col. Cabinet Co	400 chairs, desks, etc	324 50
		492	P. Hayden	Coke	3 50
		493	C. S. Amy	Carpentry and repairs	16 85
		494	Charles Mully	1000 bricks and repairs	7 00
		495	E. B Armstrong	Stoves and repairing	49 75
	12	496	S. H. Ellis	Trustee expenses	18 65
	18	497	Col. Post Office	Postage for President	58 36
		498	T. C. Mendenhall	Salary for half of Dec	112 50
	15	499	Albert Allen	Salary to date	125 00
	24	500	Wm. A. Mason	Salary for January	140 00
		501	W. Q. Scott	“ “	275 00
		502	Edward Orton	“ “	225 00
		503	S. A. Norton	“ “	225 00
		504	N. S. Townshend	“ “	225 00
		505	R. W. McFarland	“ “	225 00
		506	S. W. Robinson	“ “	225 00
		507	T. C. Mendenhall	“ “	225 00
		508	N. W. Lord	“ “	100 00
		509	John T. Short	“ “	225 00
		510	S. C. Derby	“ “	225 00
		511	W. R. Lazenby	“ “	200 00
		512	Geo. Ruhlen	“ “	50 00
		513	Alice Williams	“ “	80 00
	27	514	M. Dillon	“ “	83 33
		515	Sam'l. Kendrick	Half of net cash proceeds to date from cer. V. M. L'ds	83 89
		516	Geo. W. McCoard	Sal. ass't in Mathematics	100 00
		517	F. H. Eldridge	“ Physics	100 00
Feb.	3	518	D. O'Brien	“ Chemistry	30 00
		519	M. Suzuki	“ Physics	20 00
		520	T. J. Driscoll & Co	Tank and boiler repairs	32 00
	10	521	Col. Post Office	Postage for President	40 00
		522	C. C. Green	Assis't in Zoology	10 00
	12	523	W. Q. Scott	American Potitics (Library)	6 50
		524	Robert Wood	Est. on residences	711 00
		525	W. R. Lazenby	Exp. Farmers' Institute	24 25
		526	T. C. Mendenhall	“ “	28 00
		527	W. Q. Scott	“ “	34

STATEMENT V.—Continued.

Date.	No. of Order.	To whom paid.	For what purpose.	Amount.
883.				
Feb. 12	528	W. R. Lazenby	Hort'l depart. supplies	$57 65
	529	Albert Allen	Exp. on catalogues	7 60
	530	Myers Bro's	Examination papers	5 00
	531	West. Union Teleg. Co	Messages	65
	532	McCune, Lonnis & Griswold	Mech'l Dept. supplies	59 03
	533	Asa Gray	Flora Braziliensis	11 25
	534	F. E. Powell	Shingles	9 00
	535	S. A. Norton	Chemicals	130 28
	536	Kaiser & Bro's	Glass and repairs	8 05
	537	Col. Brass & Steam P. Wk's.	Pipes	8 70
	538	Kilbourne, Jones & Co	Rope for Dormitory	5 28
	539	Stitt, Price & Co	Lime and repairs	10 21
	540	James Kelley	2 months lawn keeper	70 00
	541	Ohio Coal Exchange	158 $\frac{3}{100}$ tons coal	323 96
	542	E O. Randall	Papering farm house	28 82
	543	Hann & Adair	Printing slips	2 45
	544	Wm. B. Potts	Thimbles for chimneys	1 80
	545	N. S. Townshend	Exp. advertising lectures	24 70
	546	Wm. Brotherton	Farm house repairs	54 81
	547	Siebert & Lilley	Order books	24 45
	548	C. S. Amy	Labor and repairs	15 70
	549	Abbott, Stoner & Horn	Hardware, glass, etc	86 14
14	550	S. H. Ellis	Exp. Trustee	10 60
15	551	C H. Taylor	Gun-rack, military dep't	88 00
17	552	Albert Allen	Salary to 15th	125 00
	553	W. Q. Scott	Furnace and gas apparatus	350 00
20	554	Minnie E. Bird	Sal. Asst. Librarian	30 00
23	555	C. A. Barton	Ref'd to Jones & Newman, ac. of V. M. Lands	21 00
24	556	W. Q. Scott	Salary for February	275 00
	557	Edward Orton	"	225 00
	558	S. A. Norton	"	225 00
	559	N. S. Townshend	"	225 00
	560	R. W. McFarland	"	225 00
	561	S. W. Robinson	"	225 00
	562	T. C. Mendenhall	"	225 00
	563	S. C. Derby	"	225 00
	564	N. W. Lord	"	100 00
	565	John T. Short	"	225 00
	566	George Ruhlen	"	50 00
	567	W. R. Lazenby	"	200 00
	568	Wm. A. Mason	"	140 00
	569	M. Dillon	"	83 33
	570	Alice Williams	"	80 00
March 1	571	James Kelley	Lawn keeper	35 00
2	572	J. B. Jamison	Trustee expense	17 80
	573	T. A. Cowgill	"	11 80
	574	Amasa McGuier	200 fence posts	50 00
	575	J. R. Hughes & Co	Office baskets	2 65
	576	Col. Cabinet Co	Chairs, etc	124 80
	577	Mrs. W. D. Henkle	Books for Library	7 50
	578	T. C. Ashinger	Labor and repairs	6 05
	579	G. M. Maris & Co	Mech'l dept. supplies	22 49
	580	Midland Telephone Co	Fine signal line	25 00
	581	J. W. Russell & Co	Repairing pump	8 00
	582	E. B. Armstrong	Stove and repairs	14 84

STATEMENT V.—Continued.

Date.	No. of Order.	To whom paid.	For what purpose.	Amount.
1883.				
March 2	583	Geo. Ruhlen	Mil. dep't supplies	$12 00
	584	J. & H. Berge	Mining "	10 25
	585	Edward Orton	Farm Inst. expenses	9 70
	586	N. W. Lord	"	15 70
	587	W. Q. Scott	"	12 80
	588	F. D. Prouty	Exchange of lawn mowers	13 00
	589	A. H. Smythe & Co	Books for library	57 99
	590	J. E. Snyder	Cess-pools for new resid'ce.	122 40
	591	G. W. McCoard	Sal. asst. in Mathematics	100 00
	592	Geo. Rhoades	Painting	12 45
	593	T. C. Mendenhall	Farm. Inst. expenses	3 90
	594	Kauffm'n, Latimer & Rising	Phys. dep't. supplies	8 14
	595	J. W. Queen & Co	"	172 13
	596	W. U. Telegraph Co	Messages	50
	597	J. T. Short	Farm. Inst. expenses	5 65
	598	S. W. Hempsted	Bronze and oils	2 45
7	599	L. B. Wing	Expense Trustee	19 50
15	600	C. C. Green	Assistant in Zoology	10 00
17	601	D. O'Brien	" Chemistry	30 00
	602	Robert Wood	Estimate on residences	499 50
20	603	C. A. Barton	Services as Agt. V. M. Lands	261 22
27	604	W. Q. Scott	Salary for March	275 00
	605	Edward Orton	"	225 00
	606	S. A. Norton	"	225 00
	607	N. S. Townshend	"	225 00
	608	R. W. McFarland	"	225 00
	609	S. W. Robinson	"	225 00
	610	T. C. Mendenhall	"	225 00
	611	N. W. Lord	"	100 00
	612	J. T. Short	"	225 00
	613	S. C. Derby	"	225 00
	614	W. R. Lazenby	"	200 00
	615	Geo. Ruhlen	"	50 00
	616	W. A. Mason	"	140 00
	617	Alice Williams	"	80 00
	618	M. Dillon	"	83 33
	619	Albert Allen	Salary to 15th	125 00
	620	Minnie E. Bird	" asst. librarian	11 66
	621	M. Suzuki	Asst. in Phys. laboratory	20 00
	622	J. P. Milligan	Services in Presid'ts room	25 00
28	623	C. C. Green	Asst. in Zoology	15 00
	624	D. O'Brien	" Chemistry	40 00
	625	Trustees Col. Water W'ks.	Water main to University	419 67
30	626	E. E. Sparks	Asst. in History	32 00
31	627	F. H. Eldridge	Asst. Prof. Physics	40 00
	628	Geo. W. McCoard	" in Mathematics	100 00
	629	F. E. Powell	Lumber for repairs	5 10
	630	L. D. Myers, P. M	Postage stamps	15 00
April 4	631	J. T. Harris & Co	Est. No. 1 on 3 Residences	411 65
	632	Robert Wood	" No. 8 on "	1,602 00
	633	H. S. Babbitt	Salary to April 1	100 00
5	634	N. S. Townshend	Expenses Farm. Institute	15 15
	635	Ohio Coal Exchange	$104\frac{14}{100}$ tons coal	213 49
	636	Wm. Taylor	Janitor's supplies	5 50
	637	Myers Bro's	Examination papers	10 00

STATEMENT V.—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
April 5	638	Midland Telephone Ex	Rents to July 1	$26 00
	639	Franklin Iron Co	Chem. dep't supplies	23 50
	640	Col. Cabinet Co	Mineral case	22 75
	641	James Kelly	Lawn keeper	35 00
	642	Siebert & Lilley	Muster-roll	18 10
	643	C. S. Amy	Work mechanical lab	5 00
	644	Col. B. & St. Pipe W'ks Co	Mechanical lab. supplies	8 90
	645	A H. Smythe	Hymnals, $50; b'ks, lib.$2.55	52 55
	646	M. C. Lilley & Co	Swords and belts	37 00
	647	E. L. Milligan	74 volumes history	89 75
	648	Wm. Halley	Plumbing	25 83
	649	Hann & Adair	Slips for President	1 00
17	650	Albert Allen	Salary to 15th	125 00
20	651	S. H. Ellis	Trustee expenses	13 50
24	652	Futerer & Co	Est. 1, plumbing 3 houses	149 85
	653	Robert Wood	Est. 9, " 2 br. houses	495 00
25	654	W. Q. Scott	Salary for April	275 00
	655	Edward Orton	"	225 00
	656	S. A. Norton	"	225 00
	657	N. S. Townshend	"	225 00
	658	A. H. Derby	"	225 00
	659	R. W. McFarland	"	225 00
	660	S. W. Robinson	"	225 00
	661	T. C. Mendenhall	"	225 00
	662	N. W. Lord	"	100 00
	663	J. T. Short	"	225 00
	664	W. R. Lazenby	"	200 00
	665	Geo. Ruhlen	"	50 00
	666	Wm. A. Mason	"	140 00
	667	Alice R. Williams	"	80 00
	668	M. Dillon	"	83 33
May 2	669	Geo. Rhoades	Days' work	16 25
	670	Bowe & Beggs	Matting	1 74
	671	Columbus Tranfer Co	Carriages and transport'n	51 84
	672	Clarke & Fahey	Lumber and labor	7 22
	673	B. E Vance	Drum-head	5 00
	674	Columbus Nursery	Trees	15 25
	675	R. W. McFarland	"	6 50
	676	Wm. Halley	Cistern pump	15 50
	677	Wm. Brotherton	Building cistern	38 75
	678	N. W. Lord	Supplies mining dep't	24 13
	679	Albert Allen	Exp. ch'ges and envelopes	4 50
	680	P. Hayden	1 ton Blossburg coal	4 75
	681	Jas. Kelley	Lawn-keeper, 1 month	35 00
	682	John T. Short	The Northman Library	2 50
	683	Electric Supply Co	Physical departm't supplies	26 92
	684	Kilbourne, Jones & Co	Copper wire for Phy. dep't	2 80
	685	Hann & Adair	Class cards	4 90
	686	R. W. McFarland	Care of gates	5 00
	687	Strobridge Litho. Co	Letter-heads and envelopes	49 00
4	688	J. E. Snyder	Furnace, chemical lab	45 90
	689	same	3 cisterns for residences	189 00
	690	Robt. Wood	1st est. on add. to resid'ces	750 60
5	691	Clark & Fahey	Carpentry at laboratory	295 00

STATEMENT V.—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
May 5	692	J. E. Snyder	2 cess-pools and cisterns, lab.	$180 30
	693	David O'Brien	Salary ass't in chemistry	40 00
	694	Minnie E. Bird	" Librarian	25 00
15	695	Albert Allen	Salary to date	125 00
18	696	C. C. Green	Assistant in zoology	10 00
22	697	E. E. Sparks	" history	25 00
26	698	W. Q. Scott	Salary for May	275 00
	699	Edward Orton	"	225 00
	700	S. A. Norton	"	225 00
	701	N. S. Townshend	"	225 00
	702	R. W. McFarland	"	225 00
	703	S. W. Robinson	"	225 00
	704	T. C. Mendenhall	"	225 00
	705	N. W. Lord	"	100 00
	706	Jno. T. Short	"	225 00
	707	S. C. Derby	"	225 00
	708	W. R. Lazenby	"	200 00
	709	Geo. Ruhlen	"	50 00
	710	Wm. A. Mason	"	140 00
	711	Alice Williams	"	80 00
	712	M. Dillon	"	83 33
	713	D. O'Brien	Assistant in chemistry	30 00
	714	F. H. Eldridge	" physics	40 00
1	715	S. H. Ellis	Trustee expenses	13 75
	716	Thos. A. Cowgill	"	18 30
	717	T. J. Godfrey	"	19 25
2	718	J. P. Milligan	Assistant President's office	15 00
	719	R. W. McFarland	Bills for grading	103 25
	720	Jacob Rhoades	"	159 25
4	721	J. Zeis	"	26 25
	722	Jno. L. Flowers	Carpentry phys. departm't	150 00
	723	Geo. Rhoades	Labor	5 25
	724	Geo. Ruhlen	Armory expenses	11 20
	725	S. A. Norton	Department supplies	4 21
	726	Eimer & Amend	Chemicals	46 40
	727	Wm. A. Mason	Art department supplies	5 15
	728	Stitt, Price & Co	Lime and cement	10 93
	729	W. U. Telegraph Co	Messages	1 40
	730	Siebert & Lilley	Book and letter-heads	11 70
	731	A. H. Smythe	Supplies dep't physics	1 00
	732	Kauffman, Lattimer & R.	" "	1 23
	733	T. C. Mendenhall	Telescope-stand	11 50
	734	Strobridge Litho. Co	Envelopes	5 50
	735	F. Buck & Son	Brooms	6 50
	736	N. S. Townshend	Bal. Farm. Inst. expenses	48 60
	737	Myers Brothers	Examination papers	5 00
	738	Institution for the Blind	Tuning piano	3 00
	739	Abbott, Stoner & Horn	Lawn tools	3 80
	740	T. H. Schneider	Rent of piano	22 50
	741	C. S. Amy	Carpentry	7 00
7	742	C. C. Green	Assistant zoological dep't	20 00
18	743	W. Q. Scott	Salary for June	275 00
	744	Edward Orton	"	225 0
	745	S. A. Norton	"	225 0

STATEMENT V.—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
June 18	746	N. S. Townshend	Salary for June	$225 00
	747	R. W. McFarland	“	225 00
	748	S. W. Robinson	“	225 00
	749	T. C. Mendenhall	“	225 00
	750	N. W. Lord	“	100 00
	751	W. A. Mason	“	140 00
	752	Albert Allen	Salary to June 15	125 00
	753	Henry S. Babbitt	3 mos. salary to July 1	100 00
	754	Jno. T. Short	Salary for June	225 00
	755	S. C. Derby	“	225 00
	756	W. R. Lazenby	“	200 00
	757	Geo. Ruhlen	“	50 00
	758	Alice Williams	“	80 00
	759	M. Dillon	“	83 33
	760	Minnie E. Bird	Bal. salary ass't Librarian	16 67
	761	D. O'Brien	“ chemistry	30 00
	762	E. E. Sparks	“ history	25 00
	763	Morizo Sazuki	Assistant phys. department	30 00
19	764	S. H. Ellis	Trustee expenses	20 00
21	765	F. H. Eldridge	Assistant in physics	20 00
	766	J. B. Jamison	Trustee expenses	31 20
	767	T. A. Cowgill	“	20 90
22	768	T. J. Godfrey	“	17 85
23	769	J. W. Gilliland	13 days' labor	19 50
	770	S. A. Norton	Chemical dep't supplies	66 95
	771	Col. Sewer Pipe Co	Stone pipes	13 20
	772	Strobridge Litho. Co	Diplomas	12 00
	773	A. W. Livingston's Sons	Grass seed	2 00
	774	J. Zinn	5 days' hauling	17 50
	775	N. Hall	6 “ “	21 00
	776	E. Lecklider	11½ “ labor	25 90
	777	Samuel Wolf	14 “ “	21 00
	778	Benj. Selby	9 “ “	13 50
	779	Jacob Busby	12 days' labor	18 00
	780	Charles Merrick	3 “ “	4 50
	781	Geo. Rhoades	12½ “ “	18 75
	782	Jacob Rhoades	Carpentry, etc	47 50
	783	Charles Jacobs	11 days hauling	38 50
	784	R. W. McFarland	Care of gates	20 80
	785	“	Bursar, $50; Supt. farm, $50	100 00
	786	W. Q. Scott	Exp. of speaker at com	10 00
	787	G. W. Mace & Co	Mechl. dept. supplies	12 78
	788	Wm. Brotherton	Bal. for work on lawn	25 39
	789	Nitschke Bro's	Printing, chem. laboratory	15 00
	790	Earhart Printing Co	“ cards and prog'ms	13 00
	791	T. C. Mendenhall	Battery, etc	65 00
	792	Col. Transfer Co	Freight and drayage	13 55
	793	S. W. Johnson	Mechl. dept. supplies	11 75
	794	A. H. Smythe	Books, library	40 30
	795	H. W. Knight & Bro	Sewer & d. tile at new resi	341 50
	796	B. Waterman & Co	Books and express charges	6 80
	797	Edward Orton	Fossils	15 50
	798	J. N. Horne	Music at commencement	15 00
	799	Robert Wood, contractor	Extras on residences	225 00

STATEMENT V.—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
June 23	800	Col. Nursery	Evergreens and plants	$16 80
26	801	Robert Wood, contractor	Est. 10 on 2 brick houses, $206.10; est. 2 on additions to above, $394.00,	600 10
	802	“ “	Pt. of est. 11 on residence	600 00
	803	“ “	Bal. of est. 11 & final on res.	442 68
	804	“ “	Est. 3 & final on add. to res.	84 00
29	805	Sunday Capital	Printing notices	2 00
	806	Orebaugh & Brodbeck	“ “	3 00
30	807	H. Bancroft, Agt	Ins. on residences, $11.000	63 00
July 2	808	O. B. Thompson	Lien on residences	291 40
	809	Robert Wood	Bal. on est. 9 & final fr. house	164 41
3	810	W. Q. Scott	Bal. J. P. Milligan, salary	10 00
5	811	James Kelley	Lawn keeper, 2 mos	70 00
10	812	L. D. Myers, P. M	Postage on catalogue	16 20
24	813	Albert Allen	Salary to 15th	125 00
25	814	M. Dillon	“ for July	83 33
	815	Futerer & Co	Bal. w. supply for residences	94 87
27	816	S. H. Ellis	Exps. Trustee	28 10
	817	T. A. Cowgill	“ “	14 05
28	818	Wm. Brotherton	Repairs	9 70
	819	West. Union Telegraph Co.	Messages	5 60
	820	R. W. McFarland	Paid for labor	5 25
	821	Col. Transfer Co	Carriages for com., etc	30 59
	822	Earhart Printing Co	Postals and printing	2 00
	823	A. W. Livingston's Sons	Lawn grass seed	4 00
	824	Myers Bro's	Examination papers	5 00
	825	Geo. W. Gleason	Library books	12 23
	826	Midland Telephone Co	Rents to Oct. 1	25 00
	827	M. D. Krumm	Drive gate to High St	25 00
	828	Slade & Kelton	Lumber for fences	110 65
	829	Jas. McDowell	5½ days' carpentry	11 00
30	830	J. T. Harris & Co	Architect's fees, 3 residences	219 98
Aug. 4	831	Police Com'rs	Policeman at commencem't	5 00
15	832	Albert Allen	Salary to date	125 00
	833	T. C. Mendenhall	Apparatus for Phys. Dept	146 20
29	834	M. Dillon	Salary for August	83 33
	835	P. Hayden & Son	Boiler castings	39 33
Sept. 5	836	Sheppard & Co	Janitor's supplies	21 15
	837	A. H. Smythe	Goodwin's Polit. Justice	7 25
	838	Wassall Fire Clay Co	Fire clay and brick	8 74
	839	P. J. Scanlan	Cleaning cistern	6 00
	840	Col. Brass & S. P. Works	Pipe and coupling	37 36
	841	Jas. Kelly	Lawn keeper 2 mos	70 00
	842	Andrew Dobbie	Muslin for commencem't	2 28
	843	Ohio Coal Exchange	$93\frac{240}{2000}$ tons of coal	214 04
	844	A. O. Jones & Co	Drain tile	26 00
	845	Hann & Adair	Class cards and envelopes	9 65
	846	Col. Brass & S. P. Works	Pipes for Hort. Hall	65 71
	847	McCune, Lonnis & Grisw'ld	2 brackets	1 00
	848	Albert Allen	Exp. charges	1 10
	849	Ohio State Journal	Circulars	56 50
	850	Crosby Steam G. & V. Co.	Gages for Mech'l Dept	20 00
	851	Siebert & Lilley	Binding 22 vols	26 75

STATEMENT V.—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
Sept. 5	852	W. H. Crawford	Brick work on boilers	$32 74
7	853	Jas. B. Jamison	Exp. Trustees	22 00
	854	Samuel Kendrick	Fees for new V. M. Lands	131 56
	855	John Welsh	Ditch digging	29 66
	856	Wm. Halley	Bal. rep'g & remov'g w. closets	150 00
	857	T. J. Godfrey	Exp. Trustees	20 30
	858	L. B. Wing	" "	16 25
	859	S. H. Ellis	" "	14 00
8	860	Lanphear & Lorenz	Meterials and labor, repairs	376 99
	861	W. H. Scott, President	Postage and express	22 11
	862	J. H. Conaway	Ditch and pipe laying	31 87
15	863	D. O'Brien	Remov'g Chem. Lab	80 17
	864	Albert Allen, Secretary	Salary to date	125 00
26	865	N. W. Lord	Salary for Sept	100 00
	866	S. A. Norton	"	225 00
	866	W. H. Scott, President	"	275 00
	868	Edward Orton	"	225 00
	869	N. S. Townsend	"	225 00
	870	R. W. McFarland	"	225 00
	871	A. H. Tuttle	"	225 00
	872	S. W. Robinson	"	225 00
	873	T. C. Mendenhall	"	225 00
	874	Miss Cynthia U. Weld	"	120 00
	875	S. C. Derby	"	225 00
	876	W. R. Lazenby	"	200 00
	877	Josiah R. Smith	"	225 00
	878	Geo. Ruhlen	"	50 00
	879	Alice Williams	"	80 00
	880	Henry S. Babbitt	Sal. 3 m., $100; postage, $5.25	105 25
	881	M. Dillon	Salary for Sept	106 86
	882	D. O'Brien	"	60 00
	883	Geo. W. McCoard	"	120 00
	884	C. N. Brown	"	60 00
Oct. 11	885	Lanphear & Lorenz	Carpentry and plumbing	407 89
12	886	Siebert & Lilley	Tuition books, etc	55 35
	887	Warner & Foote	Map of Ohio	15 00
	888	W. J. Root	Remov'g mining apparatus	7 00
	889	W. U. Telegraph Co	Message	2 02
	890	H. L. Osborn	Supplies for Geol. Dept	86 55
	891	N. W. Lord	" Mechl. Dept	4 65
	892	Henry A. Ward	" Zoology Dept	168 70
	893	Columbus Ice Co	Ice	5 38
	894	Ed. of "Makio"	Advertising	7 50
	895	J. Koenig	Painting	37 92
	896	A. H. Smythe	Stationery	8 95
	897	Slade & Kelton	Lumber	4 40
	898	Col. Gas Light & Coke Co.	Coke	18 00
	899	E. B. Armstrong	Repairing stoves	90 25
	900	Abbott, Stoner & Horn	Hardware	22 72
	901	J. & H. Berge	Crucibles	48 55
	902	Jas. Kelley	One man's labor	35 00
	903	Scioto Bolt Works	Caulking flues	3 10
	904	Hann & Adair	Envelopes for Prest	5 80
	905	Lyonsdale Coal Co	$237\frac{1748}{2000}$ tons coal	594 72

TABLE V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
Oct. 12	906	Geo. Ruhlen	Supplies military dep't	$15 00
	907	Cent. U. Telephone Co	Rent 2 teleph. to June 1	25 00
	908	M. Dillon	Laying pipe	7 00
	909	E. Evans	5 days' labor	7 50
	910	John Gilliland	9 “	13 50
	911	Jas. Sullivan	4 “	6 00
	912	J. Sherman	13¾ “	17 62
	913	S. Spencer	9¾ “	14 62
	914	Jacob Rhoads	11½ days' hauling	40 25
	915	Chas. Jacobs	9½ “ “	33 25
	916	Nat. Hall	5¾ “ “	20 12
	917	Peter Casey	4¾ “ “	16 62
	918	George Rhoades	16 “ painting, etc	25 25
15	919	Albert Allen	Salary to date	125 00
31	920	A. H. Tuttle	Salary for October	225 00
	921	W. H. Scott	“	275 60
	922	N. S. Townshend	“	225 00
	923	S. A. Norton	“	225 00
	924	R. W. McFarland	“	225 00
	925	S. W. Robinson	“	225 00
	926	T. C. Mendenhall	“	225 00
	927	N. W. Lord	“	100 00
	928	Cynthia U. Weld	“	120 00
	929	S. C. Derby	“	225 00
	930	W. R. Lazenby	“	200 00
	931	J. R. Smith	“	225 00
	932	George Ruhlen	“	50 00
	933	Alice Williams	“	80 00
	934	D. O'Brien	“	60 00
	935	C. F. Marvin	“	50 00
	936	George W. McCoard	“	120 00
	937	C. N. Brown	“	60 00
	938	M. Dillon	“	125 00
Nov. 2	939	L. D. Myers, P. M	Postage	10 00
	940	Edward Orton	Salary for October	225 00
7	941	Col. Gas Fitting Co	Gas pipes	19 68
	942	Col. Rubber Co	Rubber tubing	3 39
	943	S. R. Watts	Carpentry	1 60
	944	The “ Makio ”	Advertising	7 50
	945	Edwin Alden & Bro	“	124 00
	946	A. L. Rohrer	Repairing annunciator	4 65
	947	C. F. Marvin	Electric bells	5 50
	948	J. W. Jordan	Work in zoological dep't	32 00
	949	M. Dillon	Setting furnace phys. dep't	17 50
	950	A. W. Livingston's Sons	Blue grass seed	5 50
	951	Columbus Cabinet Co	Chairs for chem. laboratory	216 67
	952	J. M. & W. Westwater	Dusters and pendants	17 90
	953	F. A. Ray	Glazing at dormitory	3 00
	954	A. H. Tuttle	Bills improvem'ts zoo. dep't	64 45
	955	Col. Sewer Pipe Co	Drain pipes	15 00
	956	F. Koenig	Painting blackboards	6 05
	957	Slade & Kelton	Lumber for “	3 78
	958	Col. Brass & St. Pipe Co	Hose and fittings	20 46
	959	F. N. Coe & Bro	Paving brick	91 00

TABLE V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
Nov. 7	960	Jacob Rhoades	14½ days' hauling	$50 75
	961	John Conrad	3⅝ " "	12 68
	962	Peter Casey	7¼ " "	25 37
	963	Charles Jacobs	15½ " "	54 25
	964	Nelson Hall	11¾ " "	41 12
	965	John Gilliland	19¾ " labor	29 62
	966	J. Sherman	18½ " "	27 75
	967	J. Sullivan	5 " "	7 50
	968	S. Spencer	16 " "	21 00
	969	J. Atwell	10 " "	15 00
	970	George Rhoades	16 " "	24 00
	971	F. A. Ray	Carpentry	2 00
	972	J. McDowell	1½ days' labor	3 00
	973	J. E. Schenck	Care of gates 3 mos	5 00
15	974	Henry S. Babbitt	Salary as Treas. to date	50 00
	975	Albert Allen	" Sec'y "	125 00
	976	C. F. Marvin	Salary for September	50 00
		Total disbursements...		$57,605 77

Total receipts, as per Statement IV	$60,646 26
Total disbursements as above	57,605 77
Balance of cash in my hands, November 15, 1883	$3,040 49

HENRY S. BABBITT,
Treasurer Ohio State University.

REPORT OF THE FINANCE COMMITTEE.

COLUMBUS, OHIO, *November* 16, 1883.

To the Board of Trustees of the Ohio State University:

We, your Committee on Finance, having this day examined the accounts and vouchers of the Treasurer, and compared them with the records in possession of the Secretary, do hereby certify that the report of said Treasurer is correct, and that the statements therein contained truthfully exhibit the condition of the finances of the University for the fiscal year ending November 15, 1883.

Respectfully submitted.

THOS. A. COWGILL,
JAS. B. JAMISON,
J. H. ANDERSON,
Finance Committee.

APPROPRIATIONS.

SECRETARY'S OFFICE, COLUMBUS, OHIO, *November* 13, 1883.

Dr. Henry S. Babbitt, Treasurer Ohio State University:

DEAR SIR: The following appropriations and authorized expenditures of the funds of the University have been made by the Board of Trustees for the fiscal year 1883:

The income of the Endowment Fund (so called), as might be required for the support and maintenance of the University, subject to the limitations of the act of Congress:

November 15, 1882—For	Sopworth's Geographical Models	$50 00
	Current expenses of Museum	50 00
	Supplies for Physical Laboratory	350 00
	Supplies for Industrial Art Department	30 00
	Supplies for Mechanical Department	150 00
	Ordinary Repairs, balance of appropriation	126 32
	Expenses attending Farmers' Institutes	150 00
January 9, 1883—For	constructing four gun-racks	90 00
	Printing synopsis org. chem. lectures	30 00
February 28,	One hundred books of song	50 00
April 19,	Basement room repairs	150 00
	Chemical Department supplies	600 00
	Advertising in fraternity publications	15 00
May 31,	Tables in Physical Department	25 00
June 22,	Chemical Department	400 00
	Physiological and Zoological Department	1,500 00
	Physical Department	400 00
	Industrial Art Department	55 00
	Library	200 00
July 26,	Advertising in newspapers	200 00
September 7,	Mechanical Department	50 00

Respectfully submitted.

ALBERT ALLEN,
Secretary.

LIST OF EMPLOYES AND COMPENSATION.

Section 7 of the organic act, passed by the Legislature of Ohio, May 1, 1878, requires a list of "the number of professors, officers, teachers and other employes, and the position and compensation of each," to be reported annually.

The following is the list, with salaries attached, at this date :

William H. Scott,	President	$2,750
Edward Orton,	Professor	2,250
S. A. Norton,	"	2,250
Norton S. Townshend,	"	2,250
R. W. McFarland,	"	2,250
Albert H. Tuttle,	"	2,250
S. W. Robinson,	"	2,250
T. C. Mendenhall,	"	2,250
Nat. W. Lord,	" (conditional)	1,000
S. C. Derby,	"	2,250
Josiah R. Smith.	"	2,250
Wm. R. Lazenby,	"	2,000
George Ruhlen,	" (military)	500
Cynthia U. Weld,	Assistant Professor	1,200
Alice Williams,	Instructor	800
Alexis Cope,	Secretary	1,200
Henry S. Babbitt,	Treasurer	400
Emma Lehner,	Assistant Librarian	125
M. N. Mix,	Clerk of President	75
David O'Brien,	Assistant in Chem. Department	600
Geo. W. McCoard,	" Math'l "	1,200
C. N. Brown,	" " "	600
C. F. Marvin,	" Mech'l "	500
F. H. Eldridge,	" Physical "	200
O. F. Scott,	" " "	100
M. Dillon,	Janitor	1,500

FARM DEPARTMENT.

REPORT OF FARM COMMITTEE.

Hon. T. Ewing Miller, President:

The Farm Committee report that they have examined the reports of the Professors of Agriculture and Horticulture, and that also of the Farm Superintendent and find their accounts and vouchers correct, and their reports to contain a great amount of valuable information.

In accordance with our plans, as indicated in our last report in reference to the establishment of small herds of pure bred stock of various kinds, we have, during the year, added to the pure bred Jerseys and short horns already on the farm, two Devons, and a herd each of Poland China and Berkshire swine, and we have no doubt that this course will result in great good to the stock interest of the State, as well as the usefulness of the University. As to the items of expenditure for new material, implements, stock, etc., we beg leave to refer you to the reports of the Professor of Horticulture, and that of the Professor of Agriculture and Farm Superintendent. These reports are herewith passed into your hands, and are made part of this report.

S. H. Ellis, *Chairman,*
J. B. Jamison,
L. B. Wing,
Farm Committee.

REPORT OF FARM MANAGER.

S. H. Ellis, Esq., Chairman of Farm Committee:

DEAR SIR: Please find herewith the Annual Report of the Farm Superintendent, Mr. W. Brotherton.

The report includes a full statement of receipts and expenditures for the year past, also a detailed account of the experiments made upon the farm.

The unusually high stage of water last winter, in the Olentangy, caused nearly one third of the farm to be flooded; fences were carried away; an immense amount of flood trash was left; a tract devoted to experiments in grain growing was too much disturbed to allow of valuable results. This experience makes it imperative to raise the levee along the banks of the river.

We also experienced much inconvenience during the past season, from the lack of sufficient barn room, which was needed for storing grain, herding stock, and the proper care of farm machinery. A most convenient site and place for such a barn as seems to be required, with estimates of cost, can better be shown upon the premises.

Yours, respectfully,

N. S. TOWNSHEND,
Professor of Agriculture.

STATEMENT A.

Items.	On hand November 1, 1882.		Bought or expended during year.		Produced or increased in value.			Consumed or decreased in value.		Sold during year.		On hand November 1, 1883.	
	Number or amount.	Value.	Number or amount.	Value.	Acres.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.
Horses	8	$920 00	1	$150 00			$190 00			1	$60 00	8	$1,110 00
Hogs	23	205 00	4	90 00		11	88 00	3	$25 00	8	132 62	27	325 00
Cattle	45	2,857 00	10	655 00		12	445 11	4	125 00	27	1,511 20	36	2,880 00
Implements		2,516 20		700 70					100 00				3,097 20
Corn	1,400 bus.	840 00	8	17 50	35	2,200 bus.	1,100 00	1,600 bus.	800 00	46½ bus.	32 71	1,961½ bus.	980 50
Wheat	65 "	65 00	3	9 50	40	1,153 "	1,242 38			1,088 "	1,177 38	65 "	65 00
Oats			100 bus.	25 00	2½	100 "	25 00	198½ bus.	49 25	1½ "	90		
Beets	1,000 bus.	200 00	14 lbs. seed.	8 40	2	3,000 "	300 00	1,000 "	200 00			3,000 bus.	300 00
Hay	54 tons.	498 00	16 tons.	93 62		50 tons.	300 00	54 tons	498 00	1 1-10 tons.	20 60	64 9-10 tons.	824 50
Millet	12 "	96 00	4 bus. seed.	4 70	2	6 "	42 00	4 "	28 00			2 "	14 00
Corn fodder	700 shks.	140 00			35	850 shks.	170 00	700 shks	140 00			850 sks.	170 00
Straw	70 tons.	280 00			40	60 tons.	240 00	5½ tons	22 00	41 tons.	165 82	73½ tons.	294 00
Potatoes	15 bus.	10 50	2¼ bus.	2 38	1¼	200 bus.	80 00	17¼ bus.	12 88	184 bus.	57 70	66 bus	26 40
Feed				222 82					216 18		7 50		
Milk						13,125 galls.	3,138 99			13,125 galls.	3,188 99		
Clover and Grass Seed	6 bus.	24 00	7 bus.	15 00		6 bus.	25 50	13 bus.	39 00			6 bus.	25 50
Miscellaneous products		27 38									240 71		20 00
Labor total				3,607 88					3,399 47		208 41		
†Bills				1,434 33									
Totals		$8,673 08		$7,036 88			$7,296 98		$5,554 78		$6,744 54		$9,632 10

† This includes material for improvement and experimentation.

Dr. N. S. Townshend, Professor of Agriculture:

DEAR SIR: I herewith present you my first annual report of the operations of the farm for the year ending October 31, 1883, together with a detailed statement of the experiments carried out under your direction. The tabulated statement "A" on page 83 exhibits the transactions and results for the year. The net earnings of the farm, $1,189.76, is shown by subtracting the value of the total produce consumed, column four of tabulated statement, from the sum realized on produce sold, column five of statement.

Statement "B" exhibits the cash account for the year as shown by the accompanying vouchers:

STATEMENT B.

Superintendent of Farm, Dr.

To cash receipts	$6,744 54
To balance on hand November 1, 1882	147 73
To cash from Wm. Holmes on account	140 00
To cash on hand	4 56
Total	$7,036 83

Cr.

By cash for farm labor and superintendence	$2,582 94
cash for student labor	1,024 9
cash for stock and implements	1,595 70
cash for material for improvements, expenditures, etc	1,828 69
cash on hand	4 56
Total	$7,036 83

THE DAIRY.

A separate account has been kept with the dairy in connection with the farm during the year. Its management has been almost wholly in the hands of students of the University, whose energy and tact have very materially aided in promoting its success. Statement "C" exhibits the results of the operation of this part of the farm for the year.

STATEMENT C.

Dairy Department of Ohio State University, Dr.

To cost of milking and care	$866 35
To cost of sundries, repairs, etc	31 68
To cost of use of horse	60 00
To cost of purchase of stock	88 91
To cost of keeping 26 cows to balance	2,834 16
Total	$3,881 10

Cr.

By sales of milk	$3,138 99
sales of 9 calves	65 11
growth of 3 calves	21 00
manure of 26 cows, @ $6	156 00
Total	$3,381 11

Divide the *gross* receipts from the dairy by the number of cows and the general average receipts from each cow, are $130,04. Divide the *net* receipts by the same number, and the general average return from each cow, for feed consumed, is, $89,77½. The above facts show that the dairy is a very valuable adjunct to this department of the University from a *financial* point of view, furnishing, as it does, a ready and profitable way of disposing of the rough fodder grown upon the farm, to say nothing of the advantages which may be gained from it in the way of experiment and illustration.

STOCK AND IMPLEMENTS.

During the year there have been bought one thoroughbred Berkshire boar; three thoroughbred Poland China hogs, and two thoroughbred Devon cows. The farm is greatly indebted to Mr. L. B. Wing, for the gift of a fine "Rose of Sharon" short-horn bull. The farm already had quite a stock of Berkshire hogs, and a good herd of Jersey cattle. These, in connection with the purchases made this year, have given quite a start in the building up of an excellent herd of blooded stock of the different breeds of the state.

An "Excelsior" harvester and reaper was bought of Messrs Hoover and Gamble, which has given perfect satisfaction. A Minard Harder, two-horse tread power and separator has been purchased in connection with experiment station for the purpose of threshing out the experimental plots of wheat, oats, etc. This is a valuable addition to the machinery of the farm. A Kemp & Burpee manure spreader has been bought, which does excellent work. A side-bar buggy, manufactured by the "Columbus Buggy Co.", was got for the use of the superintendent, which has proved to be all that was claimed for it by these enterprising manufacturers. Thanks are due all the above named manufacturers for liberal discounts made to the farm in purchasing. Considerable other necessary machinery has been got for the use of the farm.

IMPROVEMENTS.

The improvements which have been made during the past year are as follows:

1. The river frontage has been repaired of the breaks made by the floods of last winter, and the rubbish removed from the fields overflowed.

2. A six-inch tile drain, sixty-one rods long, has been laid from the river to the swale, west of the tenant house at the north side of the farm. Three laterals of eight rods each have been connected with this main. This swale is now thoroughly drained. A part of the drain from the college has been taken up and relaid, it having become clogged during the winter. A six-inch tile drain has also been laid

from the run south of the farm barn to the large dormitory, under the direction of the superintendent. This, however, was paid for from the general repair fund.

3. The old fences around the two east barn lots have been replaced by new tight board ones. The rail fence between fields 8 and 14 has been replaced by a board fence. The fence between fields 7 and 12 has been re-set and minor improvements made on other fences of the farm. The farm house has been completely overhauled and repaired, a comfortable office-room and piazza being added to the front. A one hundred-barrel cistern has been built at the rear of the house. A small part of the expense of the improvements on the house were paid for from the "general repair fund". A comfortable porch has been built to the room added to the tenant house at the north side of the farm last year. Two good grates were put in the same house, and an iron pump and sink at the well.

A large set of cases was built along the north side of the work shop for storing tools, one-half of the expense of which was paid for by the experiment station. A board floor was laid in the tool room north of the stable. The crib east of the large barn was removed to a more convenient location. The stock scales, like situated, were removed to the east of the barn and a new frame and beams put under it. The farm house and barn were painted and paid for from the general repair fund.

5. A hydrant was put in field 3, north of the President's residence, as the well in that field entirely gave out.

FARM EXPERIMENTS.

1. Wheat-varieties. The series of tests of varieties begun four years ago, under your direction, were repeated. Twenty-nine varieties were sown side by side on the clay loam field west of the University building. The land chosen is well drained naturally, being underlaid with gravel. It has been heavily manured with barn yard manure for several successive years, and is consequently in a high state of fertility.

Table "A", appended below, exhibits the results of the test for this year.

Table "B" exhibits the comparative yield per acre in bushels and weight of grain per bushel for the four years since the tests were begun, while table "C" exhibits the comparative yield of the red and white, and bearded and smooth varieties, with their weight per bushel.

TABLE "A."

Name of variety.	Date of ripening.	Yield per acre.		Lbs. straw to bu. of wheat.	Weight of grain per bu.	Smooth or beard'd.	Color.	Straw stiffness.
		Grain, bus.	Straw, lbs.					
Bennett	July 7	32.12	4672	140.4	* 58½	S	R	Good
Champion Amber	6	40.32	5088	124.2	57	S	A	Good
Bearded Treadwell	7	41.09	5328	126.6	55½	B	W	Good
Democrat	8	45.55	5784	111.3	60	B	A	Good
Egyptian	5	44.33	5936	132.0	57½	B	R	Moderate
Finley	4	46.33	4960	105.6	58	S	R	Good
Golden Straw	4	42.70	4512	105.6	58½	S	R	Good
Grecian	8	37.10	4816	123.6	52½	S	W	Good
Heige's Prolific	4	43.73	4592	105.7	58	S	R	Good
Lancaster	5	40.13	4372	108.0	57	B	R	Poor
McGhee's Red	5	40.60	4720	118.8	57	S	R	Poor
Ostrey	5	36.43	3648	100.1	59	S	A	Good
Rice	7	40.33	4480	111.4	56½	B	R	Moderate
Rocky Mountain	4	35.30	3232	91.5	57	S	R	Good
Rodgers	7	37.66	4160	110.5	55½	S	R	Good
Russian May	4	32.26	4624	141.0	57	S	R	Moderate

TABLE "A"—Continued.

Name of variety.	Date of ripening.	Yield per acre.		Lbs. straw to bu. of wheat.	Weight of grain per bu.	Smooth or beard'd.	Color.	Straw stiffness.
		Grain, bus.	Straw, lbs.					
Russian No. 2	July 4	37.20	4400	118.2	*58	S	W	Good
Sandomirka	7	41.06	5792	138.0	58	S	W	Good
Smooth Treadwell	8	36.24	4976	133.6	54	S	W	Good
Smooth Scott	6	35.93	5440	148.2	54½	S	A	Good
Silver Chaff	9	39.00	4976	127.8	54½	S	W	Moderate
Tennessee Amber	5	30.00	3040	101.3	59	S	A	Good
Travis	9	34.15	4432	128.4	58½	S	A	Moderate
Velvet Chaff	4	35.21	4768	133.8	59½	B	A	Good
Wayne County Select	8	48.00	5120	106.6	56	B	W	Good
White Blue Stem	8	44.31	5312	118.8	57½	B	R	Moderate
Yellow Blue Stem	7	45.17	4960	110.0	58	S	R	Good
York White Chaff	8	39.73	4976	122.4	56½	S	W	Good
Zimmerman	7	33.12	4672	140.4	54½	S	R	Moderate
Average yield		39.33	4727	120.1				

*Note—The wet spring, succeeded by dry weather for a few days before ripening, is the only apparent cause for the lightness of the grain.

TABLE "B."

Varieties.	Yield of grain per acre—bushels.				Weight of grain per bushel.		
	1880	1881	1882	1883	1881 *	1882 *	1883 †
American White	....	19	21	....	59½	59½	....
Arnold's Gold Medal	31	19½	27	....	60	56	....
Bearded Treadwell	....	....	....	41.09	....	....	55½
Bennett	....	....	28½	32.12	....	62	58½
Champion Amber	....	23	21	40.32	57½	56	57
Clawson	26	23	27	....	59	57	....
California Blue Stem	....	....	24	....	....	59	....
Democrat	....	....	....	45.55	....	....	60
Egyptian	....	22	27	44.33	59	59½	57½
Finley	....	....	22½	46.33	....	58½	58
Fultz	27	21½	19½	....	61	61	....
German Amber	....	24½	21	....	62½	57	....
Golden Straw	28	19½	19½	42.70	60½	62	58½
Grecian	....	20	24	37.10	58½	59½	52½
Heige's Prolific	....	19	21	43.73	61½	59	58
Hungarian	....	21	28½	....	62	59½	....
Indiana Swamp	....	23½	27	....	61	58	....
Lancaster	....	23½	27	40.18	57	60	57
Mammoth Red	....	12½	27	....	57½	60	....
McGhee's Red	....	26	25½	40.60	62	58	57
Mediterranean	....	21½	27	....	59	59½	....
Michigan Amber	....	21½	24	....	50½	59	....
New Zealand	....	....	27	....	....	56	....
Ostrey	....	....	....	36.43	....	....	59
Red Amber	....	25½	22½	....	61	59½	....
Rice	....	....	27	40.83	....	58	56½
Rickenbrode	....	19½	10½	....	58½	59½	....

TABLE "B."—Continued.

Varieties.	Yield of grain per acre—bushels.				Weight of grain per bushel.		
	1880	1881	1882	1883	1881	1882	1883
					*	*	†
Russian No. 2	....	17	30	37.20	62½	62	58
Russian May	....	....	28½	32.26	....	62½	57
Rocky Mountain	....	....	....	35.30	....	....	57
Rodgers	....	....	....	37.66	....	....	55½
Sandomirka	30	26½	28½	41.06	63	63	58
Smooth Scott	....	26½	25½	35.93	61½	61	54½
Siberian	....	26½	25½	....	61½	61	....
Silver Chaff	33	26	28½	39.00	59½	52½	54½
Smith's Scall	....	....	22½	....	....	57½	....
Smith's Improved	....	16½	21	....	59½	60	....
Smooth Treadwell	....	....	....	36.24	....	....	54
Tappahannock	....	16½	24	....	61	63	....
Theiss	....	25	16½	....	62½	59	....
Travis	....	....	18½	34.15	....	60	58½
Tennessee Amber	....	....	....	30.00	....	....	59
Velvet Chaff	28	22½	27	35.21	64	64½	59½
Washington Glass	....	....	27	....	....	56	....
Wayne County Select	....	....	....	48.00	....	....	56
White Eldorado	....	....	21	....	....	58	....
White Blue Stem	....	....	22½	44.31	....	57½	57½
White Glass	....	....	27	....	....	58	....
Yellow Blue Stem	....	....	21	45.17	....	60	58
Yellow Missouri	....	12	16½	....	57½	57	....
York White Chaff	....	26	21	39.73	59	61	56½
Zimmerman	....	26	30	33.12	61	58½	54½

* As cleaned for seed. † As from machine.

TABLE "C."

Average Yield and Weight of Red Wheat compared with White Wheat.

	Average yield.			Average weight.		
	1881	1882	1883	1881	1882	1883
	bus.	bus.	bus.	lbs.	lbs.	lb
Red...	21.6	24.1	38.9	* 60.1	* 57.9	† 57.5
White	20.8	24.6	35.5	60.	59.5	55.6

Average Yield and Weight of Smooth Wheat compared with Bearded Wheat.

	Average yield.			Average weight.		
	1881	1882	1883	1881	1882	1883
	bus.	bus.	bus.		[illegible]	
Smooth	20 2	23.5	37.6	* 59.7	* 59.2	† 56.9
Bearded	22.5	24.6	42.7	60.7	59.5	57.4

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* As cleaned for seed.

† As from machine.

The object of these tests is to ascertain as nearly as may be the relative merits of the more common varieties grown in this latitude when exposed to similar conditions of soil and climate. In determining the value of a given variety, its time of ripening, hardiness, liability to rust, and to attacks from injurious insects, stiffness and shortness of straw, size and quality of grain are all taken into consideration.

It is hoped to make a series of chemical tests of the relative amount of gluten in the different varieties grown from year to year, as the "Patent Process" of milling is being adopted all over the State, and the millers will compel the farmers to grow a more *flinty* and hence a more *glutenous* wheat. It has been the custom to offer for seed each year some of the best of the varieties grown on the farm, and being desirous of knowing whether they were giving satisfaction, the following circular was sent to each customer of last year:

COLUMBUS, OHIO, *July* 21, 1883.

DEAR SIR: With regard to the variety of wheat you purchased of the farm last fall, will you be kind enough to fill out the following blank at once?

1. Variety sown.
2. Quantity sown per acre.
3. Date of plowing.
4. Date of sowing.
5. How sown.
6. Was it injured by fly?
7. How did it stand the winter?
8. Quality of straw.
9. Quality of grain.
10. Probable yield of grain per acre.
11. Do you think it worthy of further trial in your latitude?
12. Have you any variety which you wish tested by the farm?

Our object in sending out these circulars is to ascertain, as nearly as may be, whether different varieties tested by us are realizing our expectations.

Fifty of the circulars sent out have been thus far returned. These came from farmers scattered over a wide range of territory. The diversity of soil and climate, and especially the unfavorable season considered, they are as satisfactory as could reasonably be expected. The following table gives the substance of these answers:

	Name of variety.	Quality of straw.	Quality of grain.	Hardiness	Injury by fly.
1	Velvet Chaff	Good.	Fair.	Good.	But little.
2	"	"	Good.	"	None.
3	"	"	Fair.	Fair.	"
4	"	"	Good.	Good.	"
5	"	"	Medium.	"	"
6	"	Fair.	"	"	"
7	"	Medium.	Poor.	Fair.	"
8	"	"	Fair.	Good.	Some.
9	"	Good.	Good.	"	None.
10	"	"	Poor.	Medium.	"
11	"	"	Good.	Good.	"
12	"	"	"	"	Badly.
13	"	"	"	"	None.
14	"	....	....	....	Very badly.
15	"	Good.	Good.	Good.	None.
16	"	"	"	"	"
17	"	"	"	"	"
18	"	Fair.	"	Fair.	"
19	"	Poor.	Poor.	Good.	"
20	"	Good.	Good.	"	"
21	"	Fair.	"	"	"
22	"	....	....	Killed.	....
23	"	Good.	Good.	Good.	None.
24	"	"	"	"	"
25	"	Poor.	Poor.	Fair.	Some.
26	"	Good.	Good.	Good.	"
27	"	Poor.	"	"	"
28	"	Good.	"	"	"
29	"	"	"	"	"
30	"	"	Poor.	"	"
31	Sandomirka	Fair.	Good.	"	"
32	"	"	Poor.	"	None.
33	"	Poor.	"	Poor.	"
34	"	Fair.	Medium.	Medium.	"
35	"	"	"	"	"
36	"	Good.	Good.	Good.	"
37	"	"	"	Fair.	"
38	"	"	"	Good.	"
39	"	"	"	"	"
40	"	"	"	"	"
41	"	"	Poor.	"	Badly.
42	Zimmerman	Fair.	Good.	"	None.
43	"	"	"	Poor.	"
44	"	Good.	"	Medium.	"
45	"	"	"	Good.	"
46	Silver Chaff	Poor.	Poor.	"	Some.
47	"	Fair.	Fair.	Fair.	None.
48	"	Good.	Good.	"	"
49	"	Fair.	"	Fair.	"
50	Finley	Good.	"	Medium.	"

It was determined to try the effects of the more common fertilizers upon the yield of wheat. Accordingly an even piece of well drained, loamy clay land was chosen for these tests, which had received no fertilizers of any kind, save clover, since the field was bought by the University. Thirty plots of one fiftieth of an acre each were laid off, and fertilizers applied, as shown in the table below, immediately after sowing the wheat. This table shows also the results of the experiment. The excessively wet weather of the spring washed out of the soil a great part, if not all, of the valuable compounds of the fertilizers used, so that very little, if any, benefit was received from them by the crop. Hence, nothing can be determined of their relative value from this year's tests.

No. of plot.	Kind of fertilizer used.	Bushels per acre.	Straw.	Weight of Grain per Bushel.	Lbs. straw to bu. grain.
1	600 lbs. barn-yard manure	34.16	4000	59½	114
2	10 lbs. bone meal	26.25	3525	59.75	134
3	10 lbs. bone meal, and 10 lbs. nitrate of soda.	22.08	2925	59.00	132
4	Nothing	34.16	4050	59.87	118
5	600 lbs. barn-yard manure, and 6 lbs. of sulphate of potash	34.16	8150	59.25	918
6	600 lbs. of barn-yard manure, and 6 lbs. of sulphate of lime	37.50	4450	59.00	115.8
7	10 lbs. bone meal, and 6 lbs. sulphate of potash	27.88	2975	59.50	109 2
8	Nothing	27 88	2925	59.50	104.4
9	10 lbs. nitrate of soda	27.22	3375	59.50	123.6
10	600 lbs. barn-yard manure, and 10 lbs. bone meal	35.83	3930	59.75	103.8
11	600 lbs. barn-yard manure, and 10 lbs. sulphate of magnesia	33.75	3975	59.00	117.6
12	10 lbs. bone meal, and 6 lbs. chloride of pot ash	32.18	3463	58.75	105.6
13	10 lbs. bone meal, and 10 lbs. nitrate of soda, 10 lbs. sulphate of magnesia	28.10	3412	60.00	120.0
14	Nothing	28.97	2963	58.50	105.0
15	600 lbs. barn-yard manure, and 10 lbs. bone meal, 6 lbs. sulphate of potash	34.62	4025	59.25	116.4
16	10 lbs. nitrate of soda	·27.50	2750	59.00	99.6
17	Nothing	27.08	2975	57.75	109.8
18	10 lbs. bone meal, and 10 lbs. nitrate of soda, 10 lbs. sulphate of lime	28 55	2886	59.50	123.4
19	Nothing	32.50	3550	60.00	110.4
20	300 lbs. barn-yard manure, and 5 lbs. nitrate of soda	35.00	3600	59.75	104.4
21	10 lbs. nitrate of soda, and 6 lbs. sulphate of potash	29.16	4350	58.75	148.8
22	10 lbs. bone meal, and 10 lbs. nitrate of soda, and 6 lbs. sulphate of potash	22.08	3175	59.00	143.4
23	10 lbs. sulphate of lime	32.88	3575	60.00	111.0
24	6 lbs. chloride of potash	34.16	3360	68.00	96.0
25	600 lbs. barn-yard manure, and 10 lbs. nitrate of soda	22.97	3125	59.75	136.2
26	10 lbs. nitrate of soda, and 6 lbs. chloride of potash	30.42	4275	60.00	140.4
27	10 lbs. of bone meal, 6 lbs. chloride of potash, and 10 lbs. of nitrate o. soda	30.00	4200	59.00	140.0
28	5 lbs. sulphate of lime	29.16	3550	58.75	124.8
29	6 lbs. sulphate of potash	27.16	3250	60.00	120.0
30	600 lbs. barn-yard manure, 10 lbs. nitrate of soda, 6 lbs. sulphate of potash, and 10 lbs. of bone meal	31.45	3913	59.37	124.2

2—*Corn.*—Thirty-five acres of corn were raised on the farm this year, comprising three varieties, as follows: "Leaming," "Ellis' Improved Leaming," and the "Newton Hunter." The seed of each of these was obtained directly from their originators. Of these varieties, the "Ellis' Improved Leaming" has given the most satisfactory results, ripening the earliest and most evenly, and having the smoothest and most uniform ear, with relatively the smallest cob to amount of grain.

Some tests were made in the spring of the germinating power of seed carefully selected at time of husking, and stored in bins alone, and of seed selected in the spring from corn which had laid in heap in the crib throughout the winter. Both lots were of the "Leaming" variety and were grown in the same field, and husked at the same time in the fall, the only difference being in the manner of storing. The Experiment Station kindly tested the seed in their "seed tester," with the following results:

Seed selected in fall, per cent. germinated	83.33.
Seed selected in spring, per cent. germinated	61.66.

A series of tests of the relative productiveness of seed selected from different parts of the same ear was begun this spring. Three plots of even bottom land of one and one-eighth acre each were chosen, and seed planted on each taken from the "butts," "middles" and "tips" of ears respectively. The grains from one-fourth of the ear at the butt-end were designated as "butt" grains, those from one-fourth of the ear at the tip-end as "tip" grains, and those from the remaining half as "middle" grains. During the early part of the season the plat planted with "middle" grains made the best growth, but at the time of ripening there was no appreciable difference in the appearance of the fodder or grain of any of the plots. The following table gives the yield from each plot in bushels of grain, at 72 pounds per bushel, and in weight of fodder:

Descripiion of plot.	Bushels of corn.	Weight of fodder.
No. 1, planted with butt grains	99 bus. 2 lbs.	4,755 lbs.
No. 2, planted with middle grains	99 bus. 37 lbs.	4,960 lds.
No. 3. planted with tip grains	86 bus. 48 lbs.	4,505 lbs.

3—*Oats.*—Five varieties of oats were sown this spring, as follows: Russian White, Washington, Brunswick, Potatoe and Hopetown. The Russian White ripened so late and lodged so badly that we got no return from it. The Brunswick and Washington varieties did well. The Potatoe and Hopetown varieties were kindly sent to the farm by Mr. F. W. Deming, of Rootstown, Ohio, who imported them from Scotland. Owing to unavoidable delays they did not reach the farm until the 7th of May, and were sown on the 8th. The grain of each matured tolerably well and bid fair to adapt themselves to our soil and climate.

4—*Beets.*—Two acres were sown in yellow and white French sugar beets this spring. These yielded about 3,000 bushels of an excellent quality of roots. The experience of several years has proven this crop to be a valuable adjunct to the food ration for the milk cows, furnishing a large amount of rich, succulent feed, which preserves the yield of milk from the fluctuations due to the change from pasture to dry feed.

5. Three lysimeters for measuring the natural percolation of water through the soil, were constructed this spring. While the apparatus used in their construction might not be termed "classical," yet they are certainly sufficient for the purpose. The materials, for the construction of each were exactly alike, so that a description of one will suffice for all. A glazed sewer pipe was forced down around a core of earth. This pipe was of perfect make, 24 in. in diameter and 24 in. long. The earth surrounding the pipe was than removed for some distance, and two stone pillars were set in the ground at such a distance below the surface that their upper edges were one-half inch below the lower edges of the sewer pipe. A sheet of boiler iron, 28x 30½ in. perforated near its center with eight holes, and with its ends resting on the stone pillars, was driven through the core of earth so that the lower edges of the sewer pipe rested firmly on the plate. They were then cemented together with hydraulic cement around the whole circumference of the pipe, thus leaving no way for the escape of water that should fall on the earth in the pipe, save through the holes in the plate. The earth beneath the plate and between the pillars was then removed, and a large funnel, connected with a jar to one side, so placed that all the water which should drop from the holes in the plate would run immediately into the jar. In forcing the pipes down around the cores of earth, in the lysimeters Nos. 1 and 3, no accident occurred, so that the earth in them remained undisturbed from its previous condition. The earth in No. 2, however, gave way to such an extent that it became necessary to remove it entirely, set the pipe on its plate, and fill it with loose soil, which was afterwards compacted to some extent. The earth was filled in around the lysimeters on all sides save one as soon as the work of construction was completed. This side was so walled up and covered that the rate of evaporation from the soil in the lysimeters would not vary from that of the surrounding earth. The extent of surface of earth exposed to the sky in each lysimeter is such that 1 in. of rainfall gives to it 452.3904 cu. in. of water.

Measurements of the amount of percolation have been kept since the first of May. The table given below exibits the results:

		Drainage.			Evaporation.		
		No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.
	Rainfall.	Soil in situ.	Soil filled in.	Soil in situ.	Soil in situ.	Soil filled in.	Soil in situ.
May	5.76	1.33	3.40	3.10	4.43	2.36	2.66
June	7.62	1.08	2 97	76	6.54	4.65	6.86
July	....	....	....	....	....	....	....
August	2.12	nil.	nil.	nil.	2.12	2.12	2.12
September	3.13	nil.	nil.	nil.	3.13	3.13	3.13
October	4.34	1.47	2.87	.27	2.87	1.47	4.07
Totals	22.97	3.88	9.24	4.13	19.09	13.73	18.84

Depth of soil in each gauge, 24 inches.

The nature of the soil in each gauge is as follows: 8 in. of garden mold as surface soil; 16 in. of stiff, loamy clay as sub-soil. The sub-soil in the adjoining earth is underlaid with gravel.

6—*Milk Analysis.*—Some 200 partial and complete analyses of the milk of different cows from the dairy herd have been made during the summer. The object of these analyses is to put on record some additional facts concerning the composition of the milk of different breeds of cattle. The breeds of cattle whose milk has been thus far analyzed are Short-horns, Jerseys, Devons and Natives. The Devons were added to the herd lately, and only a few analyses of their milk thus far made.

The table below gives partially the results of this work:

Breed.	No. of analyses	Water.	Total solids.	Fats.	Sugar.	Caesin.	Ash.
Short-horn............	10	86 40	13.60	3.75	4.60	4 60	.65
Devon..................	5	86.52	13.48	3.75	4.76	4.27	.70
Native..................	20	86.94	13.06	3.78	4.46	4.20	.62
Jersey..................	17	82.80	17.20	6.73	5.00	4.71	.76

These analyses refer to single cows of each breed. The result would be materially affected, if the milk of a herd of each were operated upon.

Respectfully submitted.

W. Brotherton.

HORTICULTURE AND BOTANY.

Hon. S. H. Ellis, Chairman Farm Committee Ohio State University:

DEAR SIR: I have the pleasure to submit herewith the second annual report of the Department of Practical Horticulture, covering the operations of the years 1882-83.

INSTRUCTION.

In order that the importance and necessity of the means of illustration hereinafter described may be fully understood, I repeat, in substance, a statement already published, regarding the scope of instruction in this branch of the department submitted to my care. The study of Horticulture comprises lectures and recitations in the class-room, supplemented by observations and practice in the gardens and orchards. It is treated as an *art based on science.* The instruction continues throughout the year. The first term is devoted to a study of the general principles of Horticulture and Fruit culture. Under the first general subject the following are among the topics considered: Horticulture as a profession, its relation to science; location for horticultural work; implements, fertilizers, draining and irrigation, weeds and insects, management of help, marketing, etc.

The course in Fruit culture embraces a study of the origin, history, methods of propagation, pruning and training, harvesting and marketing, insect enemies, diseases and varieties of both the small and large fruits.

The "synopsis" appended to this report will indicate the nature of the instruction given in the above named subjects.

In Arboriculture and Forestry special attention is given to the influence of forests upon climate, the value of trees for timber and ornament, the best methods of culture, and a history of different varieties.

The instruction in Vegetable culture includes kitchen and market gardening and seed-growing. Among the subjects considered are: location of the garden, laying out ground, draining, special preparation of soil, irrigation, management of composts, commercial fertilizers, implements, selection of seed, construction and management of green-houses, hot-beds, cold frames, special garden crops, history, cultivation, and varieties of each; growing seeds for home use and for market; the family kitchen garden, etc. In connection with the lectures, experiments, such as testing the vitality and germinating power of different seeds, are conducted in the laboratory.

The third term is devoted to practical Floriculture and landscape gardening. The general subject is divided into the following topics: window gardening, general management of house-plants, hanging baskets, climbing vines, flowering bulbs, ferneries, wardian cases, etc.; out-door flower-gardening, commercial flower-gardening, lawns, walks and drives, ornamental shrubs and trees, etc.

MEANS OF ILLUSTRATION.

We have at present at least five distinct sub-divisions in the department, each being a useful and necessary means of illustration. These are as follows:

(1). *A Fruit Garden*—For illustrating the practical operations of "fruit culture". This embraces about six acres, and contains a good collection of the leading varieties of our large and small fruits.

(2). *A Vegetable Garden*—Of five acres for illustrating the subject of "vegetable culture" and "seed growing".

(3). *A Nursery*—For illustrating the propagation and growth of various fruit, forest and ornamental trees, and for supplying the plants needed in the fruit, vegetable, and botanic gardens.

(4). *A Botanic Garden and Arboretum*—For illustrating the general subject of systematic and economic botany and arboriculture.

(5). *Experiment Grounds*—For testing varieties, and conducting such experiments as could not well be attempted elsewhere.

The progress made and the results attained in the different divisions of our work will be briefly treated under their appropriate heads.

GENERAL STATEMENT.

The department as a whole has been fairly prosperous the past season. The work in the spring was somewhat delayed by rainy weather and lack of teams, but, in spite of these and some other causes, most of the crops were put in in good order and in seasonable time. The continuance of wet weather caused further delay in cultivation, and made the care of the various crops somewhat more costly than usual.

Later in the season a severe drought caused the entire failure of some crops, and the partial failure of others.

The manual labor has been performed by one man employed regularly as foreman, and by students and other help engaged as needed. Much of the labor employed is of necessity unskilled and in many cases unprofitable, requiring constant supervision. There being no house for a gardener to live in upon the University grounds, nor any convenient boarding place, it is difficult to secure the services of a good foreman.

STUDENT LABOR.

During the spring and early summer a considerable portion of the work was done by students, and several were engaged more or less steadily throughout the whole season. Most of the students employed showed a desire to perform honest labor, although some had the same disposition to shirk that is occasionally seen in the class-room. The ability to perform work skillfully is manifested by very few. When there is a desire on the part of a student to learn how to perform work properly, it seems just that he should be employed, even though his work at first may be unprofitable. On the other hand there seems to be no good reason why the student who manifests no desire to learn, and who seeks to evade work should be employed.

This plan has been partially carried out the past season, and it is believed it

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should be more strictly adhered to in the future. If students could fully realize the value of the practical knowledge acquired during a few hours' labor in the gardens each week, a larger number would avail themselves of the privilege, even at reduced rates of compensation.

Much of the labor is of such a character as to necessitate some degree of skill in order to perform it successfully. Useful knowledge concerning varieties of fruits and vegetables, methods of propagation, cultivation, marketing, etc., might be acquired in this way. Such experience and knowledge may be ot great practical value even to those who do not expect to become farmers or gardeners.

OBJECT OF THE GARDENS.

The fruit and vegetable gardens are intended to be illustrative of the best varieties, and the best practical methods of cultivation and general management. It is desired to make this branch of the department of Horticulture and Botany a training school, and it is believed that in the near future those who wish to avail themselves of such opportunities will find no better advantages elsewhere. No special effort is put forth to make the gardens pay, except as means of instruction. In order to be instructive, care is taken to bring all crops grown, except in cases of special experiment, within the limit of profitable cultivation.

Much more labor might be expended for the sake of mere appearances, but no effort is made to have simply "show gardens." We believe in clean culture and insist upon good work for the sake of the crop rather than for looks alone. Our means have been too limited to attempt much in the way of adornment. In fact, it may be questioned whether beauty can exist in a garden absent from utility.

The following is a summary of the condition of the gardens, nursery, and ornamental grounds:

FRUIT GARDEN.

In the fruit garden we are cultivating the apple, pear, plum, peach, quince, and grape. There are also plantations of strawberries, raspberries, blackberries, gooseberries and currants.

APPLES.

The apple orchard contains 198 trees and covers about five acres. Many of the trees were killed or injured by the severe winter of two years ago. Vacancies were filled last spring—every dead or seriously injured tree being removed and another substituted in its place. Some of the older trees that remain will be removed next spring on account of their unthrifty condition. The ground between the rows of apple trees is occupied with strawberries, raspberries and blackberries, and is all under cultivation.

PEARS.

The pear orchard includes both standard and dwarf trees, 330 in all, covering about one and one-half acres. This has suffered to some extent from blight, and some of the trees appeared to be injured by the severe summer drouth. Some vacancies were filled last spring with new and carefully selected varieties. Others remain that will be filled next spring. The orchard has been under cultivation the past season, the land being occupied with potatoes and peas. The dwarf trees are in fairly good condition, but the standards have never done well. Judging from appearances they were inferior trees when planted. They certainly give no promise for the future.

The dwarfs have nearly reached the bearing age, and may reasonably be expected to yield fair crops in the near future.

CHERRIES

The cherry orchard contains about 80 trees, and covers about one-half acre of ground. The number of varieties is somewhat limited, but nearly all of the trees are in excellent condition. The land is kept cultivated, the spaces between the trees being occupied with currant and gooseberry bushes.

QUINCES.

The quince orchard contains 68 bushes, and covers about one-fifth of an acre. Some of the bushes have been attacked by blight, and a few have been injured by borers. But on the whole the orchard is in an excellent condition, and will soon come into bearing. It is kept thoroughly cultivated.

GRAPES.

The vineyard contains 368 vines, and covers nearly one-third of an acre. About 150 of the vines are of bearing age. Two hundred one-year-old vines, consisting of about 60 varieties, were planted last spring. These vines were donated by Prof. S. M. Tracy of the Missouri State University. The collection embraces the following sorts:

Agawam, Alvey, Amber, Amber Juice, Black Eagle, Black Hawk, Blood's Black, Brighton, Cambridge, Clinton, Cottage, Creveling, Delaware, Duchess, Early York, Eldorado, Elvira, Elvira Seedling, Goethe, Golden Clinton, Golden Delaware, Grimes' Golden, Hartford, Highland, Humboldt, Iona, Isabella, Ives' Seedling, Lady, Lady Washington, Lindley, Marion, Massasoit, Merrimac, Mi. Reisling, Moore's Early, Naomi, Norton's Virginia, Othello, Pearl, Perkins, Prentiss, Ricket's No. 141, Roger's No. 2, Rulander, Salem, Taylor's Bullet, Taylor Seedling, Telegraph, Transparent, Vergennes, Walter, Worden's Seedling.

STRAWBERRIES.

The strawberry plantations, both new and old, cover a little more than one and one half acres of ground. About one-fourth of these were planted in the spring of 1882. They were injured somewhat by the dry weather of the succeeding summer, but were carefully protected the following winter, and bore a fair crop the present season. Strawberies being a light crop generally in this vicinity, the price ruled high. The plants set last spring, something over an acre, are in good condition, although the dry weather checked their growth materially. One plantation is devoted entirely to new varieties for the sake of comparison and study.

It contains the following sorts: Bright Ida, Maggie, Primo, Piper's Seedling, Woodward's No. 1, Early Canada, Gypsy, Orient, Satin Gloss, Columbus, Wilson's, Norman, Photo, Oliver Goldsmith, Finch's Prolific, Sterling, Duncan, Warren, Green Prolific, Capt. Jack, Crescent, Miner's Prolific, Kentucky, Longfellow, Mt. Vernon, Seth Boyden, Bidwell, Marvin, New Dominion, Sharpless, Cumberland Triumph, Hart's Minnesota, Chas. Downing, Windsor Chief, Huddleston's Favorite, Monarch, Endicott's Seedling, Seedling of Kentucky, Ideline, Big Bob, James Vick, Jersey Queen, Manchester, Daniel Boone, Mrs. Garfield, Prince of Berries.

These plants were set in spring, in rows three and one-half feet apart. They were well cultivated and kept free from weeds during the summer. The runners were allowed to take root. In early winter, before our severe frosts, the beds will be covered over with a coating of straw. Two years' experience here in Central Ohio has proved that careful winter protection is one of the essential requisites of success in strawberry culture. An account of the cost of the plants, and every hour of labor, is carefully kept. By this means we shall be able to tell next season just what our strawberries cost us per quart.

RASPBERRIES.

The raspberry plantations cover a little more than two and one-half acres of ground. They consist of both red and black varieties. Of the red we have the following: Turner, Brandywine, Cuthbert, Crimson Beauty, and Hansell. Of the black: Mammoth Cluster, Gregg, Miami, Tyler, and Souhegan. The method of cultivation is simply to keep the ground free from weeds, and to remove all superfluous suckers or stolens. No stakes are used. The bushes are made to support themselves by systematic pruning. The crop of the past summer was not a full one, owing to the fact that many of the bushes were injured by the cold weather of last winter. The berries, as a rule, were of good quality, and brought good prices, which made fair returns. The plantations are now in excellent condition, and give promise of an abundant crop next year.

BLACKBERRIES.

Only a small portion of the fruit garden is devoted to blackberries, but we expect to extend the plantation and increase the list of varieties next spring. Those cultivated at present were considerably injured by winter-killing. This, together with a cold and protracted rain-storm at the period of blossoming, followed by a severe drouth, will account for the partial failure of the crop the past season. We hope for better results another year.

CURRANTS AND GOOSEBERRIES.

These occupy the ground between the rows of trees in the cherry orchard. They have been very thoroughly cultivated, and the effect is seen in the increased size and improved quality of the fruit. The crop of the past summer was an excellent one, and brought fair prices. The varieties cultivated are mainly old standard sorts. Owing to the lack of time and means but little attention has been given to new varieties, although a few, like Fay's Prolific, have been planted.

MARKETING FRUIT.

Great care was taken in gathering and preparing the small fruits for market. The method of packing was such as to place the fruit before the customers in first-class condition. An evidence that purchasers appreciate good fruit brought to them in good shape was the fact that they were willing to pay good prices for such. By this means alone we were able to add largely to the receipts of the fruit garden.

On the whole the fruit garden is a fair success. The crops were not large, but the quality was good. Nearly all of the varieties represented are in a healthy, vigorous condition, and the outlook for next year is promising. We hope to increase the list of varieties, and make the garden a model in every respect.

THE VEGETABLE GARDEN.

In this branch of the department the first work of the spring was the construction of hot-beds. These were made early in March. In them were sown different varieties of lettuce, cabbage, cauliflower, tomatoes, egg-plant, peppers, and other seeds.

TOMATOES.

The tomato plants were transplanted several times before they were removed to the garden. This gave large, well-rooted, vigorous plants, almost ready to blossom when set out. They were planted in rows four feet apart, and the plants were set about three feet apart in the row. The crop occupied about three-quarters of an acre. The cultivation was done almost entirely by horse-power. The record of labor shows that the cost of growing the crop was about 15 cents per bushel. The price obtained was very low, leaving a small margin for profit. A considerable amount of seed has been saved which is in good demand. The varieties most largely grown were Acme, Perfection, Paragon, Favorite and Trophy.

EGG PLANTS.

These were an almost total failure on account of the severe and long-protracted summer drouth.

CABBAGES.

The plants were grown mainly for a late crop, to follow early potatoes, so that two crops might be raised from the same ground in one season. Owing to the dry weather the crop was almost a total failure, except one-quarter of an acre which was planted for a second early crop. The cultivation was done entirely by horse implements, thus reducing the cost to a minimum. The actual expense, as shown by the records, did not exceed one cent per head.

ONIONS.

The amount of ground occupied with onions was three-quarters of an acre. This was thoroughly enriched with well decomposed stable manure. The soil was well prepared and the seed sown as early as the ground was in a condition to work. The frequent and heavy rains early in the season were favorable to the growth of weeds, and made the cultivation difficult and more expensive than it would otherwise have been. All of the work was done with the hand cultivator and by hand weeding. The crop made a good growth in the early part of the season, but the drouth which came later checked this growth, and reduced the yield by nearly one-half. The product was about 275 bushels, and the crop cost nearly 30 cents per bushel.

The following table shows the amount of labor expended, together with the cost of seed and manure:

Dr.

Cost of seed	$10 00
Cost of manure	10 00
Men's labor, preparation of ground, sowing and weeding, gathering and storing, 29.7 days, @ $1.50	44 55
Boy's labor, weeding, 20 days, @ 75c	15 00
	$79 55

Cr.

By 275 bushels of onions, @ 60c	$165 00
By balance	$85 45

A small amount of team work is not charged, being more than overbalanced by value of manure left in the ground. The variety most largely grown was the Early Yellow Danvers. The Red Weathersfield, Early Red, Silverskin, and several other varieties were grown in less quantity.

OTHER VEGETABLES.

Carrots, beets, parsnips, and vegetable oysters were grown in a similar manner. About one-sixth of an acre was devoted to each crop. The work was done entirely with a hand cultivator, and by hand weeding. The expense of raising the crops averaged about 10 cents per bushel.

SEED BEANS.

About one-quarter of an acre was devoted to Golden Wax beans, which were grown for seed. Should this prove profitable, considerable ground could be used in this way, raising the beans as a second crop.

POTATOES.

Two and one-half acres were devoted to potatoes. Only early varieties were used, and these were planted just as soon as the ground was in a suitable condition. The work of cultivation was performed almost entirely with a horse. The yield was fairly good, being about 200 bushels per acre. The cost of growing the crop was about twelve cents per bushel, leaving a handsome margin for profit. The varieties grown were Early Rose, Early Ohio, Watson's Seedling, Chicago Market, and Clark's No. 1. Of these the Early Ohio proved the earliest and most profitable. It fewer small potatoes than any other variety.

NURSERY.

In my report of last year, the following statement, in regard to the necessity of a nursery as a means of illustration and education was made: "No special argument is needed in support of the proposition that a well conducted nursery is an important and necessary adjunct to the Department of Botany and Horticulture. The practical operations of horticulture can be made familiar in no other way, and any useful system of experimentation requires, that we have constantly on hand a good supply of seedling plants and young fruit, forest, and ornamental trees. As a step in this direction we have raised the past season quite a collection of seedling fruit and forest trees. Another year we hope to greatly enlarge and extend this important branch of our work. Recognizing the subject of forest-tree culture as one of vital interest to the people of this State, we should certainly do all in our power to illustrate how cheaply and easily many of our most valuable timber trees may be raised from seed. The varied nature of the University grounds offers locations suitable for extensive and valuable experiments in forestry, and they should be inaugurated just as soon as possible". In accordance with this view we are raising samples of many of our native shrubs and trees. We shall aim to keep on hand a small stock of thrifty young apple, peach, pear, and other trees, besides seedlings of the currant and gooseberry. In small quantities we have added quite a number of varieties to our list of timber trees, and they have made a fair growth the past season. From seed planted last Spring, Chestnuts have made a growth of fifteen inches; Catalpas of twenty-four inches; White Oak nine inches; Black Ash twelve inches; Black Walnut eighteen inches; White Ash twenty inches; Sugar Maple twelve inches. We have a few Black Locusts and Catalpas that are five years old, from seed. The former have reached a height of 22 feet and a diameter of four inches, one foot above the ground. The Catalpas are 17 feet high, with a diameter of 4¾ inches.

In some future report it will be very interesting to note somewhat in detail the comparative merits of our different timber trees in our soil and climate.

THE EXPERIMENT STATION.

The work of the station has been prosecuted during the past season under my direction. In this work I have been ably assisted by Mr. W. B. Alwood, W. S. Devol, and W. J. Green. Practical work of the Horticultural Department and the investigations of the Experiment Station are so adjusted that each is a valuable complement and supplement to the other. As Director and a member of the Board of Control, I should be glad to see the Agricultural Department of the University more closely and intimately connected with the Station. I think this might be accomplished by having either the Professor of Agriculture or the Manager of the farm act as Superintendent of Field Experiments. As was stated last year, it is a matter of congratulation that the Experiment Station is carrying on its work at the State University. Without the University the Station could do but little with its present appropriation, and without the Station the University would lose one of its most valuable means of training.

A full account of all the experiments conducted in the gardens and Experimental Grounds will be given in the second annual report of the Experiment Station.

HORTICULTURAL BUILDING AND GREEN-HOUSE.

I rejoice to report that the new building for the Department of Horticulture and Botany is nearly completed. This, in connection with the green-house, will form a most valuable adjunct to the gardens, nursery, and experiment grounds. Nothing could add more to the usefulness of our practical work than the means, now soon to be furnished, for propogation, root grafting, and various other horticultural operations.

I feel assured that the bounty of the State, in supplying this additional equipment will be many times repaid by the increased efficiency of the department.

THE MUSEUM.

Some time ago the following circular was prepared and quite widely distributed:

"Knowing that it is the wish of the Trustees and Faculty of the Ohio State University to have a Museum of Agriculture and Horticulture, always open and accessible to the citizens of the State, I earnestly solicit from farmers, fruit-culturists, gardeners, and others, articles and materials illustrative of some branch of the above subjects. Samples of the different varieties of corn, wheat, oats, barley, and other grains; the seeds of fruit and forest trees, vegetables and flowers, that are sound pure, and true to name; specimens of grasses, weeds, and other small plants that may be of interest; sections of different varieties of wood; specimens of injurious or beneficial insects; samples of soil taken from different depths; all these, and many other things will be gladly received.

"A museum of this character will supply a long felt want in the State, and I trust that we shall have your active co-operation in establishing it. Due credit will be given for all donations received.

"I append brief directions for sending specimens: Small packages of grain or seeds of any kind, grasses, weeds, or any other small plants, may be sent by mail; larger packages by express. These packages should be accompanied by notes showing where, when, and under what conditions the samples were collected. Insects may be sent by mail. They should be packed in cotton or paper, and enclosed in a stout box. Notes upon their habits, and the results of any experiments with different remedies, should also be sent with them. With woods, wherever possible, send short sections of the trunk with the bark on, with notes stating from what part of the tree the section was taken, the age if known, time of cutting, etc. Samples of soils should be sent in quantity sufficient to each fill a two quart jar, with accurate statements as to where they were procured. Every package, whether by mail or express, should be marked with the name of the sender."

In response to this appeal some valuable museum specimens have been received. Inasmuch as we are now provided with ample room for exhibiting and preserving the same, I hope that the practice of contributing to the museum will become more general.

THE UNIVERSITY CAMPUS.

Through the generosity of the late Dr. John A. Warder, quite a number of trees and shrubs have been added to the University grounds. Others have been secured by purchase, and I trust means may be furnished for the continuation of this good work. Every typical variety of tree, shrub, and hardy herbaceous perrennial that will grow in our climate, should find a place somewhere upon the University grounds. The object in this would be not simply to make the campus attractive from an æsthetic point of view, but to make it abidingly useful as a means of instruction in the Department of Botany and Horticulture.

THE LAWN.

This has been kept in as neat a condition as was possible with the means at our command. Its condition, however, is far from satisfactory to those in charge. The farm department needed all its mowers at the time when one was needed on the lawn. I renew my recommendation for the purchase of a one-horse lawn mower. Without it the grounds can not be kept in first-rate order. Under the able direction of Prof. McFarland, the walks and drives have been well cared for, and are constantly being improved. Several old, partially dead, and decaying apple trees ought to be removed, and some rustic seats and arbors should be placed at suitable points.

FLOWERS.

Our flower beds have been the same in number and extent as last year. Owing to our long continued summer drouth the plants did not look as well as usual. With the completion of the Green-house we will have means for raising a good supply of bedding plants, and it is hoped that more will be done in the way of practical floriculture. By so doing we will not only add to the attractiveness of the University, but also furnish a valuable means of illustration for the students of this department.

NEEDS OF THE DEPARTMENT.

One of the most imperative needs of the department is a dwelling-house for the superintendent or foreman of the gardens. Without this it is next to impossible to secure and retain the services of just the right man for this important position. We also need, and should have an appropriation for a complete assortment of the best horticultural implements, such as budding knives, pruning shears, grafting apparatus, etc. One hundred dollars judiciously expended would go far to meet the most urgent of these latter needs.

PROVISIONS FOR IRRIGATION.

The question of the best means of securing to garden crops a proper amount of moisture in times of drouth is one of signal importance, and demands a practical solution. A portion of the garden adjacent to the farm-house is so situated that it can be irrigated at comparatively slight expense. Can not the Horticultural Department of the University take the lead in this experiment? We have a good wind-mill which is not now needed for other purposes. I think seventy-five dollars would cover all expense of preparation for irrigating the crops on an acre. I feel sure that this cost would be more than repaid in the increased products of the garden. For lack of water several of our most important garden crops have failed utterly both last season and the preceding one.

OUTSIDE WORK.

During the past winter I attended the meeting of the Ohio State Horticultural Society, besides several County Society meetings. I also attended and took part in six Farmers' Institutes, held in different sections of the State. Last Spring I read a paper before the State Forestry Association at Cincinnati, and during the summer vacation attended and took part in the meetings of the National Forestry Congress at St. Paul, and those of the Society for the Promotion of Agricultural Science, and the Association for the Advancement of Science at Minneapolis. Besides the above, I have been obliged to decline numerous requests to lecture or present papers. The annual meeting of Teachers of Agriculture and Horticulture was held last summer at our University. It cost no little time to prepare for and make the necessary arrangements for this meeting, all of which were made by Professor Townshend and myself.

I am glad to receive letters of inquiry, but they have increased to such an extent as to be a severe tax upon my time. If the labors of the department continue to multiply, some assistance will be imperative.

ACKNOWLEDGMENT.

I wish to renew my thanks to the friends of the University who have aided the Department of Horticulture by donations of seeds, plants, etc. Every gift of this character has been fully appreciated, and has added something to the efficiency and usefulness of the department. Allow me also to acknowledge my appreciation of the able and untiring efforts of Mr. W. J. Green, Superintendent of the gardens, in carrying out the plans of the year; and of the valuable volunteer services of Mr. Wm. B. Alwood, of the Experiment Station.

I cannot close without returning thanks to the students and others who have labored in the Horticultural Department. Nearly all have faithfully employed their time and have done good, honest work.

Respectfully submitted.

WILLIAM R. LAZENBY,
Professor of Horticulture and Botany.

SYNOPSIS OF A COURSE OF LECTURES ON PRACTICAL FRUIT CULTURE.

[Delivered at the Ohio State University during the Fall Term, 1883.]

By WILLIAM R. LAZENBY,

Professor of Botany and Horticulture.

Lecture I.—Horticulture as a Profession—Advantages—Moral Influences—Healthfulness—Comparative Profits—Certainty of Success; Difficulties in Starting in any Pursuit; Special Risks in Fruit Culture.

Lecture II.—Science in Horticulture: An Art based on Science; Intimately Connected with Botany—Chemistry—Entomology—Meteorology—Geology—Physics—Political Economy, Etc. This Relationship Illustrated by Diagram; No Conflict between Art and Science or Theory and Practice; False Theories; Imperfect Practice.

Lecture III.—Intelligence in Horticulture: Education Necessary; How Best Obtained; Value of Lectures—Laboratories—Cabinets; True Office of Books; Importance of Open-eyed Observation, and Practical Experience; Learn Principles; In Details Trust Nothing but Your own Senses.

Lecture IV.—Location for Horticultural Work: How to Choose; Advantages of Any One Section Counterbalanced by Disadvantages; Healthfulness; Climate; Water Supply; Market Facilities; Soil; Choice Affected by Specialty; Choose Once for All.

Lecture V.—Necessity of Capital: How Secured; How Expended; Proportion for Land and Buildings—Improvements—Labor, Etc; Commencing on Small Capital; Evil Results of Doing Business Disproportionate to your Means; Avoid Debt; Advantages of Co-operation.

Lecture VI.—Fertilizers: Always Needed; No one Kind Cheapest and Best; Wood Ashes; Lime; Gypsum; Salt; Guano; Super Phosphate, Etc.; Several Rules for Testing New Fertilizers; Experiment on a Small Scale; Make Fair and Impartial Trials; Making and Saving Fertilizers more Important than Buying Them; Fertilizer Control Stations.

Lecture VII.—Horticultural Implements: Three Kinds of Power Employed in Cultivating the Soil—Manual—Animal—Mechanical; Natural Mode of Action of Each; Labor made Repugnant by Clumsy, Imperfect Implements; A Good Workman Known by his Choice of Tools; Importance of Keeping Clean, Bright and Sharp; Plan of Tool Room; Method of Assigning Tools to Workmen.

Lecture VIII.—Accounts in Horticulture: Causes of Pecuniary Failure; Notes and Accounts that Should be Kept: 1. A Rigid Account of the Disposal of Time. 2. A Daily Meteorological Record. 3. Daily Notes of Time of Planting, Cultivating, Harvesting, Etc. 4. A Debit and Credit Account, with Each Crop; Methods of Keeping Labor Accounts; Complications; Advantages.

Lecture IX.—Draining and Irrigation: Importance of Each; The Latter the Counterpart and Complement of the Former; Uses of Underdrains; Where Needed; Construction; How Supply an Abundance of Moisture to Growing Plants at All Times; Means and Ends of Irrigation; Where Practicable; Expense; Examples of Success.

Lecture X.—Weeds and Insects: History of Weeds; When and How to Kill Them; How to Avoid Them; How to Utilize Them; Value of Clean Culture; Losses by Insects; Causes of their Increase; How to Fight Them; Birds and Insect Friends.

Lecture XI.—Management of Help: How to Secure Efficient Labor; Different Systems of Contract; Hiring by the Day—Week—Month—Year; Advantages of the Co-operative Sytem; The Relation Between the Employer and Employed; Winter Work.

Lecture XII.—Marketing: Selling Crops Just as Important as Growing Them; Modes and Methods of Exchange and Distribution; Selling to Speculators; Selling to Commission Merchants; Selling Direct to Consumers; Use and Necessity of Middlemen; Co-operation in Marketing.

Lecture XIII.—Some Neglected Small Fruits: Barberry; Huckleberry; Elderberry; Mulberry; History; Botanical Position; Why Worthy of Cultivation; How Improved; Examples of the Effect of Culture.

Lecture XIV.—The Cranberry: Natural History; Difficulties of Cultivation; Proper Location; Soil; Methods of Planting; Treatment of Young Vines; Varieties; Necessity of Flooding; Harvesting; Marketing; Profits.

Lecture XV.—The Strawberry: Natural History; Description of Native and Foreign Species; Progress of Improvement; Sexuality; Soil and Situation; Preparation of Soil; Fertilizers; Different Methods of Propagation; Seeds—Root-Divisions—Runners.

Lecture XVI.—The Strawberry (continued): Time and Manner of Transplanting Runners; Potted Plants; Mulching; Cultivation; Renewal of Beds; Winter Protection; Varieties; Classification; Selection; Essential Properties of a Good Strawberry; Requisites of Success in Strawberry Culture.

Lecture XVII.—The Raspberry: History; Botanical Position; Methods of Propagation; Seeds—Layers—Root Cuttings; Suckers; Preparation of Soil; Planting; Cultivation; Pruning; Trimming; Winter Protection; Classification of Varieties; Insect Enemies; Rust.

Lecture XVIII.—The Blackberry: History; Propagation; Cultivation Like that of Raspberry; Difference in Management: 1. Soil Less Rich. 2. Plants Further Apart. 3. Staking Unnecessary. 4. More Severely Pruned. 5. More Carefully Protected; Description of Varieties.

Lecture XIX.—The Currant and Gooseberry: Common History; Propagation; Seeds—Cuttings—Suckers—Layers; Three Distinct Methods of Cultivation; Two Methods of Training; Bush Form; Tree Form; Varieties; How to Improve the Gooseberry; Insect Enemies; Mildew; Remedies.

Lecture XX.—Gathering and Marketing Small Fruit: Rules for Picking; Baskets; Boxes; Crates; How to Handle Perishable Fruit; Rules for Shipping; Importance f Color; Size; Firmness; Good Keeping Qualities; How to Create a Demand for Fine Fruit; The Best Markets; Profits of Small Fruit Culture.

Lecture XXI.—The Grape: Natural History and Botanical Characteristics; Nativity, European and American Species; Improvement by Natural Hybridization and Crossing; First Attempt at Cultivation. Uses of the Grape. Value of Fruit and Wine Annually Produced.

Lecture XXII.—The Grape (continued): Propagation; Seeds—Single-Bud Cuttings—Ripe Wood Cuttings—Green Wood Cuttings—Layers—Grafting. Soil and Situation; Preparatory Tillage; Fertilizers; Planting. Winter Protection.

Lecture XXIII.—The Grape (continued): Methods of Training; Lessons from Wild Vines; Forms of Trellis; Tying to Stakes; Pruning; Cultivation; Subsequent Management; Hastening Maturity of Fruit; Thinning; Gathering; Preserving; Marketing.

Lecture XXIV.—The Grape (continued): Diseases; Mildew; Rot; Cause—Nature—Remedial Agents; Insect Enemies—Rose Chafer—Thrips—Etc; How Guarded Against; History of Varieties. Essential Requisites of a Perfect Grape.

Lecture XXV.—The Grape (continued): Culture Under Glass; The Cold Grapery; Forcing Grapery; Use—Construction—Management; Suitable Varieties; Wine Making; Different Methods of Manufacture; Total Product; Moral Effect.

Lecture XXVI.—The Cherry: History; Native and Foreign Species; Two Classes; Value for Wood; Medical Properties; Fruit; Propagation—Seeds—Budding—Grafting—Root Cuttings; Soil and Location; Planting; Cultivation; Pruning; Classification of Varieties; Insect Enemies.

Lecture XXVII.—The Plum: History; Value of Native Species; Propagation. Seeds—Budding—Grafting—Root Cuttings—Suckers; Soil; Fertilizers; Planting; Pruning; Synopsis of Varieties; What Varieties Come True; Enemies; Black Knot—Curculio, Etc.

Lecture XXVIII.—Peach: Nativity; Early History; Botanical Classification and Characteristics; Propagation—Seeds; Budding—Grafting; Soil; Situation; Climatic Requirements; Famous Peach Belts. Extent of Peach Culture; Classification of Varieties.

Lecture XXIX.—The Peach (continued): How to Establish a Peach Orchard; Selection of Varieties; Transplanting; Cultivation; Fertilizers; Pruning and Training; Gathering and Marketing; Diseases; Yellows; Cause—Nature—Remedies; Injurious Insects.

Lecture XXX.—The Apricot and Nectarine; Botanical Classification; Comparative Value; Resemblances to the Peach; History; General Management; Worthy of More Extended Culture. How Improved. Uses.

Lecture XXXI.—The Pear: Nativity; Early History; Natural Size; Longevity; Propagation—Seeds—Budding—Grafting; Standard Trees; Dwarfs; Value of Quince Stock; Double Working.

Lecture XXXII.—The Pear (continued): Soil and Situation; Transplanting; Proper Age; Root Pruning; Special Fertilizers; Pruning; Forms of Training; Methods of Cultivation; Gathering; Preserving; Marketing; Varieties; How to Establish a Pear Orchard.

Lecture XXXIII.—The Pear (continued): Diseases; Pear Blight; Theories as to Causes; Symptoms; Nature; Remedies; Insect Enemies—Scale Insect—Twig

Blight—Pear Slug, Etc. Natural History; Preventive Measures; Means of Destroying.

Lecture XXXIV.—The Quince: History; Value of Fruit; Propagation—Seeds—Cuttings—Layers—Budding—Grafting—Suckers; Importance as Stock for Pears; Pruning and Training. General Management. Description of Select Varieties; Insect Enemies; Blight.

Lecture XXXV.—The Apple: Most Valuable Fruit of Temperate Climes; Etymology of Name; Botanical Characteristics; Nativity; Gradual Improvement; General History; Production ot New Varieties; Do Old Varieties Run Out.

Lecture XXXVI.—The Apple (continued): Propagation; General Principles; Differences between Seed and Bud Propagation; How to Raise Seedlings; Different Methods of Grafting—Whip—Cleft—Saddle, Etc. Budding; Advantages—Time—Method; Layers.

Lecture XXXVII.—The Apple (continued): Soil and Situation. Preparation. Transplanting. Fertilizers. Cultivation. Pruning. Packing. Marketing. Preserving. Drying and Evaporating. Classification of Varieties; Descriptive Characters.

Lecture XXXVIII.—The Apple (continued): Diseases; Susceptibility of Improved Varieties; Sun Scaled—Twig Blight—Bitter Rot—Water Core—Scab, Etc. Cause; Nature; Remedies; Insect Enemies; Apple Tree Tent Caterpiller—Codling Moth—Borer—Canker Worm—Scale Insect—Natural History; Remedies.

Lecture XXXIX.—How to Establish a Commercial Apple Orchard: Location; Preparation; Selection of Varieties; Laying out Ground; Planting; Cultivation; Pruning; General Management; Plans for Farmer's Home Fruit Garden.

Lecture XL.—Summing up: Horticulture as a Fine Art; The Fruit Culturist an Artist; Good Crops of Fine Fruit Usually Profitable. The Fairest Single Test of Success in Fruit Culture; The Great Need of Horticulture—More Thought—More Study—More Thoroughness—with Less Blind Devotion to Bad Customs and Faulty Methods.

BOOKS OF REFERENCE.

I. General Works.—Downing's Fruit and Fruit Trees of America. *Thomas' American Fruit Culturist; Barry's Fruit Garden; Elliott's Hand Book for Fruit Grower's; Cole's American Fruit Book; River's Miniature Fruit Garden.

II. Special Works.—Fulton's Peach Culture; *Quinn's Pear Culture for Profit; Field's Pear Culture; Warder's American Pomology (Apples.) *Fuller's Grape Culturist. *Husmann's Grape and Wine. Chorlton's Grape Grower's Guide. Reemlyn's Vine Dresser's Manual; Allen's Practical Treatise on the Culture of the Grape; Strong's Culture of the Grape.

III. Works on Small Fruits.—*Fuller's Small Fruit Culturist; Roe's Manual of Small Fruit Culture; Pardee's Strawberry Culture. *White's Cranberry Culture. *Eastwood's Cranberry Culture.

Miscellaneous Works.—*Reports of the Michigan, New York, Ohio and Iowa Horticultural Societies. Culver's Fruit Preserving Manual.

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*Most valuable for Students.

Statement of the aggregated receipts and expenditures of the Horticultural Department of the Ohio State University for the year ending November 12, 1883:

Receipts.

Cash balance on hand	$37 34
Cash received for products sold	1,181 89
Total	$1,219 23

Expenditures.

Labor of foreman, students, and others	$777 31
Fruit trees, seeds, plants, tools, etc.	292 43
Total	$1,069 74
Total receipts	$1,219 23
Total expenditures	1,069 74
Balance on hand	$149 49

The unexpended balance will all be needed for the purchase of fertilizers, seeds, fruit trees, etc., for next season.

WILLIAM R. LAZENBY.

RECORD OF PROCEEDINGS

OF THE BOARD OF TRUSTEES OF OHIO STATE UNIVERSITY.

COLUMBUS, OHIO, *November* 14, 1882.

Board met at 10 o'clock A. M.

Present—Messrs. Anderson, S. H. Ellis, Jamison, Godfrey, Miller and Wing.

The minutes of the previous meeting were read and approved.

The Executive Committee made report of their proceedings, and the same was approved. A communication from Professor Robinson, concerning the heating, lighting, and sewerage of the Laboratory building, was read, and ordered filed.

The annual report of the Board was read and adopted.

The Board then took a recess to allow the Executive Committee and Farm Committee an opportunity to attend to certain business coming before them. On re-assembling, it was ordered, that a warrant be drawn by the Secretary against the Auditor for the balance of $126.32, from the appropriation for ordinary repairs, in favor of the University, to cover repairs ordered. The Treasurer presented his report for the fiscal year ending to-day, and on motion it was received and referred to the Committee on Finance, to audit and report during the session of the Board.

President Scott appeared before the Board at 7 o'clock P. M., and presented his report and the reports of the Faculty, also communications from various members of the Faculty to the Board, touching the needs of their several departments. After a general consideration of these reports, the same, together with the report of the Board, were referred to a committee composed of Messrs. Miller and Alston Ellis, to revise for publication and report before the final adjournment of the Board.

Board adjourned to Wednesday, November 15, 9 o'clock A. M.

WEDNESDAY, *November* 15, 1882—9 O'CLOCK A. M.

Present—Messrs. Anderson, S. H. Ellis, Alston Ellis, Jamison, Godfrey, Miller and Wing. The estimate of appropriations desired for the year and for certain buildings was discussed and the following agreed upon, viz.: For Trustee expenses for current year, $500, and for deficiency during the two past years, $220.95; for ordinary repairs, $1,500; for Horticultural and Agricultural Hall, $15,000; for house for Professor of Horticulture, $5,000; for Library (this year), $1,000. The Board then proceeded to the University to examine into the state of affairs connected with the heating of the new Laboratory, the farm and other business matters. Upon their return Capt. C. A. Barton appeared before the Board and made a report of his work since June, 1882, showing on collections of notes given in purchase of the Virginia Military Lands, $1,954.74; from cash sales, $141.00; amount of sales since June, $716.00; expenses, $43.12; of lands discovered and reported by Samuel Kendrick (under an agreement by the Board), 269½ acres, in 4 tracts, sold at $800.00, less the expenses, $137.85, which, when collected, was to be divided with said Kendrick according to terms of agreement.

On motion, it was

Ordered, That Capt. Barton's salary from July 1 to November 15, amounting to $180.00, and costs and expenses, $43.12, be paid.

On motion, it was

Resolved, That Capt. Barton be temporarily continued as the Board's Agent in the matter of the Virginia Military Lands, and that, upon the request of the Executive Committee of this Board, he shall turn over to said committee all the records of his office and render a bill for his services up to the time named by said committee.

Ordered, That the income of the Endowment Fund (so-called) held in trust by the State, and all income from whatever source not otherwise specifically directed, be and is hereby appropriated for the maintenance and support of the University for the ensuing fiscal year, and for such other purposes, incident thereto, as the Board of Trustees may, from time to time, determine; provided, that the use of the income ($20,547.00) of so much of the fund ($342,450.81) as was derived from the proceeds of the land scrip donated by Congress, July 2, 1862, be limited to the restrictions of the second clause of Section 5 of said Act of Congress.

Upon the request of certain members of the Faculty, the following orders and appropriations were made: For Professor Lord, for teaching Juniors in Geology, present term, $100.00; for Rev. A. C. Hirst, class in Latin, present term, $150.00; for W. H. Miller, class A, in Physical Geography, $50.00; for A. D. Seby, class B, Physical Geography, $50.00; for G. W. McCoard, two classes in Algebra, present term, $300.00; for Sopwith's Geological Models, $50.00; for current Museum expenses, $50.00; for supplies for Physical Laboratory, $350.00; for supplies for Industrial Art Department, $30.00; for supplies for Mechanical Department, $150.00.

A communication was received from Prof. Mendenhall, requesting leave of absence to deliver a course of six lectures in Lowell Institute, Boston. The request was granted, with salary to cease during his absence from the University.

On motion, it was

Resolved, That the dwelling houses now in course of erection on the University grounds be tendered to Professors McFarland, Short and Mendenhall, for their use, at such a rental as shall be agreed upon by them and the Executive Committee.

Resolved, That all matters of further improvements connected with the new residences for the Professors, such as cisterns, sewers, etc., be referred to the Executive Committee. Passed.

A communication from Prof. Townshend, advising the Board that the annual session of the Agricultural Professors of the United States would be held at the University in June, and extending an invitation to the Board to be present, was read and ordered filed.

A letter from the editor of *The Lantern*, relative to advertising, was read and ordered filed.

On motion of Alston Ellis, it was

Resolved, That hereafter the annual reports of the President and other members of the faculty, so far as such reports relate to the enrollment, attendance and classification of students, and such other matters as are usually referred to in the reports of college faculties, shall be for what is known as the college year, and not for the fiscal year, as heretofore.

The death of Professor Joseph Milliken being announced, the following preamble and resolutions were unanimously passed:

WHEREAS, The Board has just learned of the death of Prof. Joseph Milliken, who was an honored member of the University faculty for several years; therefore,

Resolved, That in the death of Prof. Milliken we recognize the great affliction that has fallen upon his relatives and friends, and the loss of his faithful, untiring efforts in behalf of the educational interests of the State.

Resolved, That we are again reminded by this sad event of the years of faithful service which the deceased gave to his department in the University; of his affable, gentlemanly, and scholarly bearing, and of those excellent qualities of head and heart that endeared him to his co-workers in the faculty, to the large number of students who profited by his instruction and influence, and to the members of this Board.

Resolved, That we extend to his bereaved wife and relatives our sympathy and condolence in this their sad bereavement.

The whole matter of heating the new Laboratory was referred to the Executive Committee, with power to act.

Notice being given that the insurance taken by the contractor would expire December 15th, the Secretary was instructed to request him to keep the same insured until the building was accepted, after which the Executive Committee would determine the matter of further insurance on the building and contents.

Ordered, That $150.00 be and is hereby appropriated to defray the expenses of Professors in attending the "Farmers' Institutes" during the coming winter.

Resolved, That the suggestions of the Treasurer, recommending that Section 3446, Revised Statutes, be so amended that the same annual computation of interest on the Endowment Fund be made to conform to the fiscal year of the State, and hence to be computed to May 15 and November 15, instead of January and July, be adopted, and that such recommendation be placed in the report of the Board. Passed.

On motion, it was

Resolved, That all purchases, of whatever kind, for the University, excepting those made under special appropriations, or by direction of the Executive Committee, shall be made by the Secretary of the Board, and in case of special appropriations the party in whose behalf they are ordered, shall, whenever an account is presented for payment out of said appropriation, furnish a statement showing the balance unexpended.

The report of the Farm Committee was presented and adopted, and the recommendation of Wm. Brotherton for Farm Manager, at a salary of $600.00 per annum, his term of service to begin January, 1882, was approved.

The committee appointed to revise the reports for publication presented the following, which was adopted:

The undersigned, a special committee appointed to examine the reports presented to the Board and designed for publication in the annual report of the Board to the Governor, would report that they have performed that duty, and recommend the filing of the reports as amended by the committee.

(Signed) ALSTON ELLIS,
T. EWING MILLER.

The President of the Faculty and Secretary of the Board were appointed to read the proof and take charge of other matters connected with the printing of the annual report.

The Committee on Finance reported that they had examined the accounts and vouchers of the Treasurer, and had certified his report from November 15, 1881, to 1882, to be correct.

The following preamble and resolutions were unanimously adopted:

WHEREAS, This Board learns with surprise that no action has been taken to carry out the resolution formerly passed, providing for the holding of daily assemblies of the Students in the University Lecture-room; and

WHEREAS, We have heard no reason why such resolution should not have gone into immediate effect; therefore,

Resolved, That we reaffirm our wishes as expressed in the resolution before mentioned.

Resolved, That the Secretary of the Board is instructed to communicate our wishes to the President of the Faculty, and to represent, that it is the unanimous wish of the Board that its former action be carried into effect at once.

The Board then proceeded to the election of officers for the following year, which resulted as follows:

For President of the Board—T. Ewing Miller.

For Vice President of the Board—J. H. Anderson.

For Executive Committee—L. B. Wing, Chairman; T. J. Godfrey, and T. Ewing Miller.

For Farm Committee—S. H. Ellis, Chairman; L. B. Wing, and Jas. B. Jamison.

For Finance Committee—Alston Ellis, Chairman; J. H. Anderson, and Jas. B. Jamison.

For Secretary—Albert Allen.

For Treasurer—Henry S. Babbitt.

On motion that the salary of the Secretary for the following year be fixed at $1500.00, the ayes and nays were called. Messrs. Wing, Godfrey, Miller, Jamison and A. Ellis voted aye. Mr. Anderson, nay.

The Secretary was instructed to have the bond of the Treasurer properly approved for the sum of forty thousand dollars, and to file the same when received. The salary of the Treasurer was fixed at $400.00 for the year.

The Board then adjourned, subject to the call of the President.

(Signed)

T. EWING MILLER, *President*.

COLUMBUS, O., *January* 9, 1883.

Trustees met at 10 o'clock A. M.

Present—Messrs. Cowgill, Jamison, Godfrey, Miller and Wing.

The minutes of the last meeting were read and approved.

The President, Mr. Miller, in a brief address, welcomed Mr. Cowgill to the deliberations of the Board as a member thereof, and after a brief response the Board, on motion, proceeded to elect a chairman of the Finance Committee, vice Alston Ellis, resigned. Thomas A. Cowgill was duly chosen on the first ballot as chairman of said Committee.

The report of the Executive Committee was read and received.

A communication from Lieutenant Ruhlen was read, asking for the construction of four gun-racks, according to diagram presented, and as necessary to the protection of this property, when, on motion of Mr. Jamison, it was

Ordered, That a sum not exceeding $90.00, be, and is hereby appropriated for the construction of four gun-racks.

The following communication was presented to the Board:

COLUMBUS, O., *December* 26, 1882.

T. EWING MILLER, *Trustee Ohio State University:*

DEAR SIR: At a meeting of the Trustees of the Columbus Water Works this day held, the following resolution was adopted:

Resolved, That the Trustees will lay the necessary water main to the Ohio State University, as per the plan presented, provided, the Trustees of the Columbus Water Works shall be forever guaranteed the full right to maintain and control said pipes, mains and all fire hydrants, valves and necessary appurtenances thereto; and, further conditioned, that the said Ohio State University, through her Trustees, shall pay to the Trustees of the Columbus Water Works one-fourth (¼) amount of the entire cost of said construction, and become paying customers of the works for all water used from said mains on the premises.

Very respectfully,

(Signed) S. P. AXTELL,
Sec'y Trustees Columbus Water Works.

On motion, it was

Resolved, That the foregoing proposition be accepted by the President of the Board, and that the payment of 25 per cent. of the cost of the work, as therein mentioned, be made as soon as the proper amount can be ascertained. Passed.

Upon the recommendation of the architects, the new Laboratory building was received of Clarke and Fahey, the contractors, and the reserve of 10 per cent. ordered paid to the said contractors, saving $75.00, to be left in the hands of the Secretary to cover the unfinished matter of grading, etc., during the early Spring, and to be paid said contractors upon the architects' order.

President Scott appeared before the Board and made verbal report on matters touching the condition of the University in several of the departments of instruction, and the pressing want of a better class-room for Professor Short, also the condition of the heating and gas fixtures in the President's house.

Board adjourned to 10 o'clock January 11, 1883.

COLUMBUS, O., *January*, 11, 1883.

Board met pursuant to adjournment.

Present—Messrs. Cowgill, Ellis, Godfrey, Jamison, Miller and Wing.

On motion of Mr. Cowgill, it was

Resolved, That the heating and gas apparatus in the house occupied by President Scott be purchased by the Trustees of the University on such terms as may be agreed upon between the Executive Committee and President Scott, involving an increase in the rental of the premises from date of purchase. Passed.

Ordered, That the Secretary purchase two (2) dozen arm-chairs, for use in the class-rooms.

On motion of Mr. Ellis,

Resolved, That the employment of George W. McCoard as teacher in the Department of Mathematics be continued on same terms as heretofore, as per request of Prof. McFarland.

On motion of Mr. Wing,

Ordered, That the amount due Samuel Kendrick, under the terms of agreement made February 25, 1880, for the discovery of Virginia Military Lands sold, amounting to $83.89, be paid him by warrant on the Treasurer.

The request of Prof. Norton to have 21 volumes of the *Freseunes Zeitschrift* (now in the Chemical Laboratory reference cases) bound, was granted.

A quit-claim deed to James L. Coryell for 50 acres of land (survey No. 16,212), in Adams county, was authorized to be signed by the President of the Board.

A proposition from Jno. K. Billings, attorney, at West Union, Adams county, Ohio, offering to make collections of notes for Virginia Military Lands in Adams county, on the following terms, was accepted, viz.: On all sums without suit 3 per cent., and with suit on all sums under $100, 10 per cent.; on all sums over $100.00, and less than $500.00, 8 per cent., and on all sums over $500.00, 5 per cent. The above proposition to continue in effect only during the pleasure of the Board.

After a presentation of plans for heating and furnishing the Chemical Laboratory, on motion, it was

Resolved, That the General Assembly be asked to make an appropriation of $5,000.00 for the necessary heating and other furnishing and equipping of the new Laboratory building, in order to early occupancy.

Mr. Godfrey presented the following preamble and resolutions, which were adopted:

WHEREAS, The late E. W. Wilkerson, a former student of the University and a young man of fine promise, was the owner of a valuable cabinet of minerals, many specimens of which were unique and valuable, which cabinet, he, at his death, left to his father, H. R. Wilkerson, Esq., of Columbus, with the charge that it should ultimately go to the University; and

WHEREAS, Mr. Wilkerson has executed his son's past wishes, by placing said cabinet, together with two beautiful cases containing it, in the University; therefore,

Resolved, That said cabinet is hereby accepted on the terms imposed by the donor, viz.: (1.) The cabinet shall be maintained intact in its own cases, to be freely used, but not incorporated with other collections; the Geological Museum to be its permanent place. (2.) The cabinet shall be designated and known as the " Wilkerson Cabinet."

Resolved, That each case shall be labeled " Wilkerson Cabinet."

Resolved, That we, with kind recollections of his son, most sincerely thank Mr. Wilkerson for this valuable donation.

Resolved, That the Secretary furnish Mr. Wilkerson with a copy of these resolutions.

Ordered, That a sum, not exceeding thirty dollars ($30), be and the same is hereby appropriated for printing synopsis of organic chemistry lectures.

On motion, Board adjourned.

(Signed) T. EWING MILLER.

COLUMBUS, OHIO, *February* 28, 1883.

A called meeting of the board was held on Wednesday, February 28, 1883.

Present—Messrs. Cowgill, Jamison, Godfrey, Miller and Wing.

Minutes of the previous meeting were approved.

Executive Committee made report of their proceedings since the last meeting of the Board, and the same was accepted.

Mr. Harris presented drawings and estimates of the proposed Horticultural Hall, Conservatory and Green House, and Prof. Robinson submitted drawings showing location of steam, gas and water pipes, radiators, etc., to be placed in the Chemical Laboratory, and an approximate estimate of the equipment so indicated.

After a full consideration of the above, Board adjourned to meet the Finance Committee of the House of Representatives at 7½ o'clock P. M..

THURSDAY, *March* 1, 1883.

Board met at 9 o'clock A. M., and went to the University to inspect the general condition of its affairs. On reassembling at the office of the

Secretary, the matter of building stables and other conveniences belonging to the Pofessors' houses, was had under consideration, when, on motion, it was

Resolved, That all further buildings and equipments pertaining to the Professors' houses be referred to the Executive Committee with power to act.

The Farm Committee was authorized to have an additional cistern constructed at the farm house.

On motion, it was

Ordered, That $50 be and is hereby appropriated to buy 100 volumes of Book of Songs.

On motion, it was unanimously

Resolved, That the students of the University be required to attend the daily general exercises in the Lecture Room heretofore ordered by the Board of Trustees in their resolutions of January 5th, 1881, and November 10th, 1881, subject to the rules now existing, which govern attendance upon the regular class exercises.

Board adjourned.

(Signed.) T. EWING MILLER,
President.

COLUMBUS, OHIO, *April* 19, 1883.

Board met at 3 o'clock P. M.

Present—Messrs. Anderson, Ellis, Godfrey and Miller.

The minutes of the last meeting were read, and after amendment were approved.

The plans, estimates and specifications for the Horticultural and Agricultural Hall (for which an appropriation of $15,000 was made by the last General Assmbly), were presented by J. T. Harris & Co., architects, and considered by the Board and the Professors of Horticulture and Agriculture.

Prof. Robinson was also heard in relation to the outfit and equipment of the Chemical Laboratory. Recess was then taken until 9 o'clock A. M. April 20.

COLUMBUS, OHIO, *April* 20, 1883.

On reassembling Messrs. Anderson, Cowgill, Ellis, Godfrey and Miller were present.

The reports of the Executive Committee and Farm Committee were presented and approved.

After consideration of the plans, specifications and estimates for completing the Chemical Laboratory, on motion of Mr. Ellis, it was

Resolved, That Prof. S. W. Robinson be engaged to superintend the entire work connected with the heating, water supply, drainage and necessary equipment of the Chemical Labortory, at 5 per cent. on the cost of construction.

Resolved, That the plans, estimates and specifications submitted by Prof. Robinson for the outfit and equipment of the new Chemical Laboratory be adopted, and that the President of the Board be and is hereby instructed to approve the same by his official signature, and to take such steps as may be necessary to meet the legal requirements of valid bids for the work to be done. Passed.

On motion, it was

Ordered, That the Secretary of the Board of Trustees of the Ohio State University be and is hereby authorized to draw his warrant on the Auditor of State, for the payment of all bills or accounts properly payable from any of the several legislative appropriations for the Ohio State University, made during the last session of the General Assembly of Ohio, whenever the said bills or accounts shall have been approved by the President of the Board or the Chairman of the Executive Committee, or any two members thereof.

The Secretary was instructed to confer with the State Board of Agriculture and request the payment of $48.60, due Dr. Townshend for expenses incurred in attending Farmers' Institutes, being an excess above the appropriation of $150, made for that purpose by this Board.

On motion of Mr. Cowgill, it was

Ordered, That $150.00 be and is hereby appropriated from the fund for ordinary repairs for refitting in part the northwest basement room in the main college building for the joint use of the Meteorological Bureau and Department of Physics, under direction of Prof. T. C. Mendenhall.

On motion of Mr. Ellis, it was

Resolved, That the Executive Committee be instructed to have painted the house of Prof. Derby, the wood-work of Dr. Townshend's house and barn, and the Farm barn, as recommended by Farm Committee.

On motion, it was

Resolved, That each member of the faculty shall make out and give to the "Bursar," at the end of the second week of each term, a complete list of all students in the regular classes, whether regularly enrolled or not.

On motion of Mr. Godfrey, it was

Resolved, That the plans, specifications and estimates for the construction of the Horticultural and Agricultural Hall, as presented by J. T. Harris & Co., be adopted by the Board, and that the President of the Board be and is hereby instructed to approve the same by his official signature, and to take such other legal action as may be required for the securement of bids for the construction of said Hall.

Ordered, That $600.00 be and is hereby appropriated for the purchase of supplies for the Chemical Department.

Ordered, That $1,500 be and is hereby appropriated for advertising in the "fraternity publications" of the University, under the direction of President Scott.

On motion, it was

Resolved, That the Executive Committee be authorized to contract, as per specifications, for the building of two stables for the professors' use, at the bid of $534.00, by Parker and Plimmer.

Ordered, That the sum of $117.80, for building two cess-pools; $68.00 for cistern at the Laboratory, and the amount of Clarke & Fehey's bill for wood-work ordered done on the east wing of said Laboratory, whenever said bill shall have been approved by J. T. Harris & Co., be and the same are hereby appropriated for the purpose named.

Board adjourned subject to the call of the President.

(Signed) T. EWING MILLER, *President.*

COLUMBUS, O., *May* 31, 1883.

At a called meeting of the Board on this date, the following members were present: Messrs. Anderson, Cowgill, Ellis, Godfrey and Miller. The minutes of the previous meeting were read and approved. The report of the Executive Committee was presented and approved.

The bids for the steam-heating apparatus and equipment of the Chemical Laboratory were opened and the contract awarded to John Lorenz and O. A. Lanphear for all the work and materials complete, for the sum of $4,743.64. Prof. Robinson, as Superintendent, was instructed to have the contract prepared and filed with the Secretary.

On motion, it was

Ordered, That a sum not exceeding $25.00 be and is hereby appropriated for the purchase of five tables for the Department of Physics.

Communications were read from Miss Alice Williams and David O'Brien, touching their relations to the University, and were referred for consideration to the regular June meeting.

The Secretary made report of a conference with the Secretary of the State Board of Agriculture concerning the payment of balance of Dr. Townshend's bill of expenses in attending Farmers' Institutes, stating the improbability of any adjustment of the same; whereupon, on motion of Mr. Cowgill, it was

Ordered, That the balance of $48.60 due Dr. Townshend on his account of Farmers' Institue expenses be paid him by this Board.

Professor Tuttle appeared before the Board, requesting the enlargement of house No. 2 for the accommodation of himself and family. After consideration of the plans proposed, and a conference with J. T. Harris, architect, it was deemed impracticable to make the addition requested.

The bids for the construction of the Horticultural and Agricultural hall were opened and considered. It appearing there were no bids for the entire work complete, the following awards were made to builders named, for the several kinds of work embraced in the construction, viz.:

For all excavating, Walter Collins	$200 00
For stone-masonry, labor and material, Walter Collins	1,150 00
For cut stone, " " Wm. Fish & Son	1,175 00
For brick work, " " Robert Wood	2,179 00
For plastering, " " Fred'k Weber	260 00
For tin, iron and slate, " " Robert Wood	590 00
For painting, glass and glazing, labor and material, Louis Fink	653 00
For carpenter work, labor and material, C. B. Hall	3,872 00
For green-house (frames and glass), labor and material, Lord Manufacturing Company	2,743 00
For steam or hot water heating, labor and material, Andrew Schwartz	1,685 00
For gas pipe, 285 feet, F. N. Wilcox	83 00

The above, aggregating $14,540, which, with architect's fees, $400, and the estimate of printing, $50.00, amounts to $14,990.00, or $10.00 less than the appropriation made by the General Assembly, Mr. Harris, architect, was instructed to have printed contracts prepared and executed with the parties according to the above awards.

The Board then adjourned to meet Monday, June 18, 1883, at 7 o'clock P. M.

(Signed) T. EWING MILLER, *President*.

COLUMBUS, O., *June* 18, 1883.

Board met at 9 o'clock A. M.

Present—Messrs. Anderson, Cowgill, Ellis, Godfrey, Jamison and Miller.

The minutes of the previous meeting were read and approved.

After the consideration of some communications addressed to the Board and matters relating to the future interest of the Institution, the Board proceeded to the University.

The President of the Faculty presented various communications from different members of the Faculty, touching the wants of their departments and appropriations needed therefor, as well as others on modification of salary, employment of assistants, removal of library, resignation of Professor Short, applications for positions, etc., which, having been read, were filed for further consideration.

Upon the recommendation of the Faculty, the following degrees were conferred:

Upon Fremont Ackerman, Columbus, O., Degree C. E.
" Jos. Nelson Bradford, Columbus. O., Degree of Mech. E.
" John J. Dunn, Dublin, O., " "
" John Howard Galbrath, Columbus, O., Degree of B. Ph.
" Charles E. Higbee, Cleveland, O., " of B. Sc.
" Arthur Bascom Howard, Reily, O., " of B. Ph.
" George William Knopf, Columbus, O., " of B. Sc.
" Charles Fred'k Marvin, Columbus, O., " of Mech. E.
" Charles Christian Miller, Baltimore, O., " of A. B.
" William Frederick Speer, Jefferson, O., " of Mech. E.
" Edward M. Vanharlingen, Columbus, O., " of B. Sc.

In the case of Messrs. C. C. Miller and Edward M. Vanharlingen, the diplomas were to be withheld until they should make up their conditions.

Adjournment was then had to the room of the Secretary.

On reassembling, Mr. Anderson was called to the chair.

A communication addressed to the Board, dated May 27, 1883, from Professor John T. Short, tendering his resignation, to take effect April 30, 1883, was read.

On motion, the resignation was accepted, and the following resolutions, presented by Mr. Miller, were unanimously adopted:

WHEREAS, Professor John T. Short has, on account of ill-health, tendered his resignation as Professor of History and English literature; therefore, be it

Resolved, That with pain and sorrow we accept the same, and that while we

tender him our heartfelt sympathies we still earnestly hope his valuable life will be spared to the University and to the world.

***Resolved*, That with gratitude we express to him our hearty appreciation of his valuable services to the University. The past four years we have recognized in him the ripe scholar, the able instructor, the accomplished author, and above all these the true Christian gentleman, and one, who, by his rare endowments and courteous demeanor, has endeared himself to the Trustees and all associated with him.**

On motion of Mr. Ellis, that the Board proceed to the election of members of the Faculty, the following members were elected to the chairs as named in present catalogue and former salaries: Alice Williams, George Ruhlen, W. A. Mason, Jr., Wm. R. Lazenby, Samuel C. Derby, T. C. Mendenhall, S. W. Robinson, A. H. Tuttle, R. W. McFarland, Norton S. Townshend, S. A. Norton, and Edward Orton. N. W. Lord was duly elected to his former chair, but to receive as a salary, $1,000 per year from the Board, and the fees arising from the use of the Laboratory in work performed by him, conditioned that a full account of the fees so received be kept and reported at the end of the collegiate year.

The matter of dividing the chair of Ancient Languages was considered. A communication from Professor Derby, in relation to the necessity thereof having been read, it was moved that Professor Joseph R. Smith, formerly a Professor of Ancient Languages, be elected Professor of Greek, subject to a further assignment of duty. Passed.

On motion of Mr. Ellis, that W. Q. Scott be elected President and Professor of Philosophy and Political Economy for the coming year, the ayes and nays were called for on the motion by Mr. Anderson. Mr. Anderson voted aye. Messrs. Cowgill, Godfrey, Ellis, Miller and Jamison voted nay. The Board then proceeded to the election of assistants. Professor McFarland submitted a statement of the amount of work required by increased attendance in the departments, and George W. McCoard was elected assistant in Mathematics for one year, at a salary of $1,200; F. W. Speer as assistant in Mathematics for one year, at a salary of $600; and David O'Brien as assistant in the Department of Chemistry, at a salary of $600.

The consideration of creating a chair of Agricultural Chemistry was postponed.

A communication from H. W. Overman, concerning the final payment of $40.00 by the neighbors of Wm. Webster, deceased, on a tract of land in Pike county, Ohio, provided the Board would compromise the claim by accepting the principal, $40.00, was considered, and the Secretary directed to accept the proposition, and certify the money into the Treasury.

A letter from E. Tucker was read, asking if he should sell 2¾ acres of land in Scioto county, Ohio, for the sum of $5.00, without the regular form of appraisement, as the appraisement would cost more than the land would sell for. The Board declined to allow any sale without the land being first appraised.

Board took a recess until Wednesday, at 9 o'clock A. M.

COLUMBUS, OHIO, *June* 20, 1883.

Board met at 9 o'clock A. M.

Mr. Neal appeared before the Board, and spoke concerning necessary repairs along the line of the University grounds on High street, and desired the Board to bear their proportionate part of needed improvement. Whereupon, the Secretary was instructed to inquire of the Attorney-General if the Board had any right to direct any portion of the State funds to the improvement of High street, or are liable to pay any assessment for such public improvements, and to report the answer of the Attorney-General to the Executive Committee.

The following communication was read:

COLUMBUS, O., *June* 20, 1883.

To the Honorable Board of Trustees of the Ohio State University:

GENTLEMEN: I have the honor to place in your hands this resignation of my position as President, and Professor of Philosophy and Political Economy, to take effect at the close of the Commencement exercises to-day.

Very respectfully, your obedient servant,

WALTER QUINCY SCOTT.

On motion, the resignation was unanimously accepted, and it was

Ordered, That $50.00 be abated from any amount due on the house rent from Walter Q. Scott.

The following resolutions were passed:

Resolved, That in accepting Rev. W. Q. Scott's resignation of the Presidency of the Ohio State University, the Board desire to put upon record their recognition of the zeal and earnestness which have characterized his services in behalf of the University, during the two years of his connection with it, and to testify their appreciation of his high scholarship and integrity of character.

Resolved, That the members of the Board desire also to certify to the personal regard which they have for Dr. Scott, and to express their best wishes for his future success.

After various suggestions, President Wm. H. Scott, of Athens, Ohio, was nominated for President *pro tem.*, and Professor of Philosophy and Political Economy, and that the salary of said W. H. Scott, elect, be $2,250.00 per annum, and as long as he continues to hold the office of President *pro tem.*, he be paid at the rate of $2,750.00 per annum.

The ayes and nays being demanded, Messrs. Cowgill, Ellis, Godfrey, Jamison and Miller, voted "aye." Mr. Anderson voted "nay." W. H. Scott was accordingly announced as elected.

The Board then took a recess until Thursday evening, June 21, 1883.

THURSDAY, *June* 21, 1883.

Board met at 8 o'clock Thursday evening, June 21.

By request of Prof. Orton, leave of absence (without pay) for two months, at the beginning of the next term, was granted him, it having been explained that State duties as a member of the Screen Mining Commission, to which he had been appointed, would require his services for that period.

The transfer of the apparatus and chemicals from the old building to the new Laboratory was considered, and, on motion, it was

Resolved, That David O'Brien be engaged, at the rate of $2.00 per day, to remove the apparatus and chemicals from the main building to the new Laboratory, and that he be permitted to engage suitable help in the work, at the rate not exceeding $1.50 per day.

Recess was again had until 8 o'clock Friday morning, June 22, 1883.

COLUMBUS, OHIO, *June* 22, 1883.

On reassembling the Board ordered that the applications of L. H. Porter, F. A. March, A. H. Welsh and Rev. T. R. Taylor, for the Chair of History and English Language and Literature, be filed.

The proceedings of the Executive Committee since the last meeting of the Board were read and approved.

Messrs. Loring & Lamphear, contractors, were granted permission to remove the telephone to the new Laboratory, during the vacation, on condition that the removal and return of the same at the beginning of the next College session be done at their own expense.

The matter of laying gas-pipes within the grounds, and using city gas, was discussed, and it was decided to postpone the matter and to continue the manufacture, as heretofore, indefinitely.

The Secretary was instructed to insure the three new residences with H. Bancroft in the Germania and Hanover Insurance Companies, at the rate of 60 cents on the two bricks and 70 cents on the frame houses, for the period of 3 years, the amount to be taken on brick house No. 1, $4,000; on No. 2, $3.000, and No. 3 (frame house), $4,000. The Board decided to take no insurance on the Chemical Laboratory.

The report of the Superintendent of the campus was received and filed.

The report of the Bursar was read and approved.

On motion, it was

Ordered, That the sum of $50.00 be paid the Bursar for his services during the past year, and that he be continued for another year on the same terms.

In the case of a lien for $291.40, filed by Mr. Thompson against Rob't Wood, contractor, on what is due said Wood by the University, the Secretary was instructed to follow the advice of the Attorney-General as to payment.

On motion, it was

Ordered, That the following sums be, and are hereby appropriated for the departments named:

For Chemical Department	$400 00
For Physiological and Zoological Department	1,500 00
For Physical Department	400 00
For Industrial Art Department	55 00
For Library	200 00

Professor Mendenhall was, by permission, charged with having suitable water pipes located in the main building connected with the city water works pipes, to be used in case of fire, and to organize, if practicable, a local fire brigade, also to get a water meter and locate same.

The question of charging fees in the Physiological, Mining and Mechanical Departments was discussed, and action postponed to a future meeting.

The Secretary was instructed to have the needed repairs of plastering, painting and kalsomining done in the rooms vacated by the removal of the Chemical Department, and in other parts of the main building.

The President of the Board was authorized to sign the contracts for building the Horticultural and Agricultural hall.

Professor Robinson's request, for the appointment of C. F. Marvin as assistant in the Mechanical Department, was considered and granted.

Professor Norton reported $213.00 as the amount received by him for chemicals sold to students, and the Secretary was directed to certify the amount into the Treasury.

The Board appointed Messrs. Cowgill, Ellis and Miller a committee, in consultation with Professor Townshend and Lazenby and Mr. Harris, architect, to locate precisely the Horticultural and Agricultural Hall.

The Board then adjourned.

(Signed) T. EWING MILLER, *President.*

COLUMBUS, O., *June* 29, 1883.

At a called meeting of the Board of Trustees held this afternoon at 4 o'clock, the following named members were present: Messrs. Anderson, Cowgill, Ellis, Godfrey, Jamison and Miller.

Mr. Miller explained the object of the meeting to be, to lay before the Board a communication from Governor Foster, and to learn the action of the Board thereon. The following is a copy of the letter:

STATE OF OHIO, EXECUTIVE DEPARTMENT,
OFFICE OF THE GOVERNOR,
COLUMBUS, *June* 25, 1883.

Mr. T. Ewing Miller, President of the Board of Trustees
of the Ohio State University, Columbus, Ohio:

MY DEAR SIR: Such representations have been made to me in personal interviews by prominent citizens and through the public press, in relation to the action of your Board in the matter and manner of selecting a successor to the late President of the Ohio State University, the Rev. Walter Q. Scott, as to convince me that the best interests of the University will be subserved by a full statement from your Board, of the causes that have induced the action that you have taken, and, of the reasons why you deemed such action advisable. I will therefore be obliged for such statement at the earliest date practicable.

Yours, very truly,
CHARLES FOSTER.

Mr. Cowgill moved that the chair appoint a committee of three, to prepare a statement in response to the letter of Governor Foster of June 25, the committee to report the result of their labor to the full meeting of the Board for their approval or otherwise. Passed.

The chair appointed on this committee, Messrs. Cowgill, Godfrey and Ellis.

On motion of Mr. Jamison, the committee was instructed to report to the Board at 8 o'clock P. M. Recess was then taken.

On reassembling at 8.40 P. M., Mr Cowgill announced that the committee was ready to report. Thereupon some discussion occurred as to whether the report should be considered in open session or be considered in committee of the whole. Also, what disposition should be made of the report, as to its being given to the Governor first, or to allow the press to copy it.

On motion of Mr. Jamison, that the Board go into executive session, to consider the report of the committee, the ayes and nays were demanded by Mr. Anderson. On the call of the roll, Messrs. Cowgill, Ellis, Jamison and Godfrey voted aye. Mr. Anderson voted nay. The Board then went into executive session.

Mr. Cowgill then presented the following:

T. Ewing Miller, President of the Board of Trustees
of the Ohio State University:

Your committee, to whom was referred the communication of Governor Charles Foster, having attended to their duty under the appointment, submit the accompanying report as their conclusion thereon.

THOS. A. COWGILL,
T. J. GODFREY,
S. H. ELLIS.

[Copy of Report.]

COLUMBUS, O., *June* 29, 1883.

To his Excellency, Charles Foster, Governor of Ohio:

SIR: In answer to your polite letter of the 25th inst., addressed to the President of Trustees of the Ohio State University, in reference to their action in not re-electing Rev. Walter Q. Scott, President of said Institution, the Board of Trustees respectfully submit the following statement:

The powers and duties vested in the Board in relation to the President and Faculty of the State University are found in section 8420, Revised Statutes, which reads as follows:

SEC. 8420. The Board of Trustees shall have power to adopt by-laws, rules and regulations for the government of said college, to elect a President, to determine the number of Professors and Tutors, elect the same and fix their salaries. They shall also have power to remove the President, or any Professor or Tutor, whenever the interests of the college, in their judgments, shall require it, to fix and regulate the course of instruction and to prescribe the extent and character of experiments to be made.

Under a rule adopted by said Board in 1878, and adhered to ever since, the President and Faculty have been elected annually at the meeting of the Board, held at the close of the collegiate year. Following this rule, the Rev. Walter Q. Scott was on the 21st day of June, 1881, by the Board elected President of the University, for one year. On the 20th day of June, 1882, he was re-elected for one year. At the meeting held on the 19th of June, at the close of the current collegiate year, his term having about expired, he failed of re-election, receiving the vote of only one member of the Board.

It is difficult to place before you and the public all the causes which resulted in such action. We deem it sufficient to say that each member of the Board who voted "no" on the proposition to re-elect Dr. Scott, acting upon his solemn oath, and looking solely to the best interests of the University, for the following, among other reasons, decided that such interests would not be subserved by his further retention:

First. He neglected, for more than one year, to carry into effect a positive resolution of the Board, the performance of the duties required by said resolution being one of the reasons for his election as President.

Second. That in public lectures at the University and elsewhere, he promulgated unsound and dangerous doctrines of Political Economy.

Third. Neglect of duty in withholding communications sent to the Board through him.

Fourth. General lack of executive ability.

T. EWING MILLER,
T. J. GODFREY,
JAMES B. JAMISON,
S. H. ELLIS,
THOS. A. COWGILL.

I disapprove of the foregoing report, and dissent from its conclusions, in whole and in part.

J. H. ANDERSON.

The adoption of the report above was on motion of Mr. Jamison. The ayes and nays having been demanded, Messrs. Cowgill, Ellis, Jamison, Miller and Godfrey voted "aye," and Mr. Anderson, "nay."

The Board then adjourned.

(Signed) T. EWING MILLER, *President.*

COLUMBUS, OHIO, *July* 26, 1883.

A called meeting of the Trustees was held at 4 P. M. Present: Messrs. Anderson, Ellis, Miller and Wing.

The redistribution of rooms among the departments of the University, and the removal of the wash-room and closet to the east side of the building, for the accommodation of the lady students, was discussed, and, on motion, referred to the Executive Committee, with power to act.

The matter of supplying water from the Columbus Water Works to the Horticultural and Agricultural Hall, for temporary as well as permanent use, was considered, and Professors Lazenby and Robinson were authorized to take all necessary steps for doing the same.

A communication was read from Prof. Norton, concerning some omission in details of fitting up the Chemical Laboratory. Whereupon the Executive Committee was instructed to have the table for room 22 made; the work-table reduced, and the shutters to some of the windows cut into two pieces. Other matters, relating to purchase of chairs, etc., were referred to the Executive Committee.

The following communication was read, and ordered filed:

COLUMBUS, OHIO, *July* 4, 1883.

Albert Allen, Esq., Secretary Board of Trustees, Ohio State University:

DEAR SIR: Your favor of the 2d inst., in which you inquire if the Board of Trustees has power to divert any portion of the State funds to the improvement of High street, or pay any assessments for such improvements, is received. I do not find that the question has ever been settled by the courts. It seems to me, however, on general principles, that the Board has no power, unless specifically granted by the General Assembly. There is no doubt of the power of the Legislature to make an appropriation for the purpose, either out of the general moneys of the State, or by authorizing the Trustees to use such funds of the Institution as do not belong to the irreducible funds, or have not been otherwise specifically appropriated.

Very truly yours,

D. A. HOLLINGSWORTH,
Attorney-General.

The Secretary presented a report of the manner in which he proceeded in making the repairs on the buildings authorized at a previous meeting of the Board. The report was approved and ordered filed.

Repairs to the two dormitories was referred to Prof. McFarland and the Secretary, with power to act.

On motion, it was

Ordered, That the sum of $200 be and is hereby appropriated for advertising the University, under the direction of the President.

Mr. Ellis offered the following resolution:

Resolved, That the qualifying term "*pro tem.*" as used in the resolution electing Rev. Wm. H. Scott, President "'*pro tem.*,' and Professor of Philosophy and Political Economy of the Ohio State University," be stricken out of said resolution of July 20, 1883.

Pending discussion of this resolution, a motion to lay same on the table was carried, and recess taken until 8 o'clock P. M.

On reassembling the following members were present: Messrs. Anderson, Ellis, Cowgill, Miller and Wing.

On motion of Mr. Cowgill, the resolution of Mr. Ellis relating to the qualifying term "*pro tem.*," in the case of the election of Rev. Wm. H. Scott, President, was taken from the table. Mr. Anderson demanded the ayes and nays. The vote stood, ayes, Messrs. Wing, Ellis, Cowgill, and Miller; nays, Mr. Anderson. So the resolution passed.

A communication from Assistant Professor Wm. A. Mason, tendering his resignation as Assistant Professor of Industrial Art in the University, setting forth as his reason for the same an opportunity of securing a more eligible situation in his native State, was read.

On motion, the resignation was accepted, and the President of the Board instructed to notify him of the same by letter conveying proper expressions of the Board's appreciation.

On motion, President Scott, Profs. McFarland and Robinson were appointed to report on the best disposition of the work belonging to the Industrial Art Department.

On motion of Mr. Ellis,

Resolved, That a Chair of Agricultural Chemistry be established in the Ohio State University, and that a committee, composed of the President of the Board, the President of the Faculty and Chairman of the Executive Committee, be appointed to ascertain and recommend, at the next meeting of the Board, a suitable person to fill said Chair. Passed.

On motion of Mr. Cowgill, it was

Resolved, That the President of the Ohio State University be and is hereby invited to attend all meetings of the Board of Trustees, whether regular or special, whenever his duties as President of the Faculty will admit his so doing, and it is hereby made the duty of the Secretary of the Board to notify the President of the Faculty of all meetings.

Applications and testimonials for the Chair of History and English Language and Literature were received and read from the following persons: A. H. Welsh, Francis A. Marsh, A. J. Surface, Luther H. Porter, Rev. Thos. Doggett, Rev. T. R. Taylor, and Cynthia U. Weld. After which adjournment was had to 2 o'clock P. M., Friday, July 27.

COLUMBUS, OHIO, *July* 27, 1883.

On reassembling the Board resumed the consideration of candidates for the Chair of History and English Language and Literature.

On motion that Miss Cynthia U. Weld be elected Assistant Professor of History and English Language and Literature, the ayes and nays were demanded. On the call of the roll, Messrs. Cowgill, Miller, Wing and Ellis voted "aye"; Mr. Anderson, "nay." Miss Cynthia U. Weld was declared elected.

Mr. Cowgill moved

That the salary of the Assistant Professor of History and English Language and Literature be fixed at $1,200 per annum. Adopted.

The committee appointed to report on the proper disposition of the Chair of Industrial Art, presented the following:

OHIO STATE UNIVERSITY, *July* 27, 1883.

To the Board of Trustees, Ohio State University:

GENTLEMEN: Your committee, appointed to consider and report what course it would be best to adopt respecting the vacancy in the Chair of Industrial Art, created by the resignation of Assistant Professor Wm. A. Mason, beg leave to report that, in their opinion, the work of the department may profitably be divided. The instruction in Mechanical Drawing might be assigned to Mr. C. F. Marvin, recently appointed assistant in the Department of Mechanical Engineering, while the instruction in Free-Hand Drawing might be assigned to some other competent teacher.

W. A. SCOTT,
S. W. ROBINSON,
R. W. MCFARLAND,
Committee.

On motion of Mr. Wing, it was

Resolved, That the salary of C. F. Marvin, heretofore appointed assistant in the Mechanical Department, be fixed at $500 per annum, with the understanding that he is also to give instruction in Elementary Mechanical Drawing.

Board adjourned.

T. EWING MILLER, *President.*

COLUMBUS, OHIO, *September* 7, 1883.

A called meeting of the Board was held this day at 9:30 A. M. Present: Messrs. Anderson, Cowgill, Ellis, Godfrey, Jamison, Miller and Wing. The minutes of the previous meeting were read and approved.

The Executive Committee made report of their proceedings of July 26, 1883, and the same was approved.

Mr. Samuel Kendrick appeared before the Board, and reported progress and manner of procedure in the discovery of new lands in the

Virginia Military Land district; stating, also, that about 1,131 acres of land, heretofore sold by the University, was now claimed by the heirs of Abram Styles, under warrant No. 8,166, dated July 18, 1835, survey No. 1,619. These claims were referred to Messrs. Miller and Godfrey, with instructions to report what action should be taken, after a full conference with Mr. Kendrick.

A communication from Prof. Robinson was read, asking for an appropriation of $150 for his department, and $50 for placing in position a valuable donation of Westinghouse Air Brakes to the department, to be used in instruction.

On motion, it was

Ordered, That $150 be and is hereby appropriated to the Department of Mechanics, and that Prof. Robinson be allowed to use the necessary amount thereof in arranging for use the Westinghouse Air Brakes, donated to the department.

The resignation of Mr. F. W. Speer, as assistant in Mathematics was read and accepted.

Mr. Ellis moved

That, on recommendation of President Scott and Prof. McFarland, Mr. E. E. Marks be appointed to fill the vacancy occasioned by the resignation of Mr. Speer. Passed.

Mr. Cowgill moved

That the appointment of some proper person to give instruction in Free-Hand Drawing, and other unprovided work, in the Department of Industrial Art, be referred to the Executive Committee, with power to act, after conference with the committee of the Faculty, appointed to report on this matter at the Board meeting July 26, 1883. Passed.

On motion, it was

Resolved, That Messrs. Godfrey and Miller, of the Executive Committee, be appointed to see that that portion of the Revised Statutes (No. 8431) relating to the delivery of all plats and surveys to the Auditor of the State, be complied with.

On motion, the appointment of an assistant Librarian was referred to the Executive Committee, with power to act.

The following communication from the Janitor was read:

To the Board of Trustees:

GENTLEMEN: During the Winter Term it will take four men (three besides myself for that term, at about $1.75 per day—$157.50. During the Fall Term it will take hree men (two besides myself). For that term at same rate—$108.00. During the

Spring Term and Summer vacation, it will take two men (one besides myself)—$315.00; in all, $575.00. It will cost me the above amount to hire help during the school year. I have to do all the plumbing and repairs on the buildings during the year. I will be responsible for cleaning, and all the general repairs about steam, water, gas and plumbing, for $1,500.00 a year.

MICHAL DILLON.

The proposition was referred to Executive Committee for consideration and action.

Mr. O'Brien was authorized to have the new Chemical Laboratory cleaned out at once and return bill therefor to the Executive Committee.

By request, Mr. Jamison was granted leave of absence for the balance of this session of the Board.

On motion, it was

Resolved, That the matter of purchasing coal for the University for the ensuing year be referred to Messrs. Anderson and Miller, as a committee, with power to act, and that, until such action is taken by the committee, the Secretary be instructed to buy needed amounts at current rates. Passed.

Board took a recess until 7.30 P. M.

On reassembling (all the members were present except Mr. Jamison)' the Executive Committee reported that they had examined into the duties and labors of the Janitor, as increased by the additional buildings, and recommended that Mr. Dillon be continued on his proposition of $1,500 00 per year, from and after Sept. 15, until the period of the regular election at the November meeting of the Board. The report was accepted and the recommendation was adopted.

The committee appointed to report the name of a suitable party for Professor of Agricultural Chemistry, made the following :

COLUMBUS, O., *September* 7, 1883.

To the Board of Trustees, Ohio State University:

Your committee, appointed to nominate a Professor of Agricultural Chemistry, beg to report that they are unprepared to make a nomination, and would ask for further time.

W. H. SCOTT,
T. EWING MILLER,
L. P. WING,
Committee.

The report was accepted and the committee continued.

The committee appointed to report on some further provision for the work of the Industrial Art Department, was granted more time, and when ready to report, to do so to the Executive Committee.

It having been ascertained that Mr. E. E. Marks, elected as assistant in Mathematics, could not probably accept, the appointment of some suitable person, under the advice of President Scott and Professor McFarland, to the position, was referred to the Executive Committee, subject to approval by the Board at the next meeting.

Letters were read from Messrs. E. Tucker and J. W. Smith, relating to the possible discovery of some lands to which the University was entitled, and concerning compensation for the same on the part of said Smith. The Secretary was authorized to inform Mr. Smith, that the Board would allow him one-third of the net proceeds of sale, after payment of costs for survey, appraisements, etc., for his compensation in discovering and making known such lands, not heretofore known to the Board or any of its agents.

Board adjourned.

T. Ewing Miller, *President.*

Fourteenth Annual Report

OF THE

BOARD OF TRUSTEES

OF THE

OHIO STATE UNIVERSITY,

TO THE

GOVERNOR OF THE STATE OF OHIO,

FOR THE YEAR 1884.

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FARM COMMITTEE:

L. B. WING, S. H. ELLIS, JAMES B. JAMISON.

FINANCE COMMITTEE:

PETER H. CLARK, JAMES B. JAMISON, THOMAS J. GODFREY.

OHIO STATE UNIVERSITY.
1884-1885.

FACULTY.

WILLIAM H. SCOTT,
PRESIDENT, and Professor of Philosophy and Political Economy.—University Grounds.

EDWARD ORTON, PH. D., LL. D.,
Professor of Geology.—104 Twentieth street.

SIDNEY A. NORTON, PH. D., LL. D.,
Professor of General and Applied Chemistry.—Cor. Town and Seventh streets.

NORTON S. TOWNSHEND, M. D.,
Professor of Agriculture and Veterinary Science.—University Grounds.

ROBERT W. McFARLAND, A. M., LL. D.,
Professor of Mathematics and Civil Engineering.—University Grounds.

ALBERT H. TUTTLE, M. Sc.,
Professor of Zoology and Comparative Anatomy.—University Grounds.

STILLMAN W. ROBINSON, C. E.,
Professor of Mechanical Engineering—1205 North High street.

THOMAS C. MENDENHALL, PH. D.,
Professor of Physics.—University Grounds.

NATHANIEL W. LORD, E. M.,
Professor of Mining and Metallurgy.—Room 16, Hayden Block, East Broad street.

SAMUEL C. DERBY, A. M.,
LIBRARIAN, and Professor of the Latin Language.—University Grounds.

WILLIAM R. LAZENBY, AG. B.,
Professor of Horticulture and Botany.—West Ninth avenue.

JOSIAH R. SMITH, A. M.,
Professor of the Greek Language.—Near University.

AUGUSTUS P. BLOCKSOM,
First Lieut. 6th Cavalry, U. S. A., Professor of Military Science and Tactics, and Assistant Professor of Mathematics.—Park Hotel.

FRANK H. ELDRIDGE, ASS'T ENG. U. S. N.,
SECRETARY, and Professor of Steam Engineering.

HENRY A. WEBER, PH. D.,
Professor of Agricultural Chemistry.—University Farm.

CYNTHIA U. WELD, A. M.,
Ass't Professor of History and English Language and Literature.—Cor. Sixteenth and Waldeck ave.

ALICE K. WILLIAMS,
Instructor in the French and German Languages.—Lane avenue.

S. C. DERBY, A. M.,
Librarian.

COLUMBUS, OHIO, *November* 15, 1884.

To His Excellency, Governor GEORGE HOADLY:

SIR: I have the honor to transmit herewith the fourteenth annual report of the board of trustees of the Ohio State University.

Very respectfully,
Your obedient servant,
ALEXIS COPE,
Secretary of Board.

REPORT OF TRUSTEES.

OFFICE OF THE BOARD OF TRUSTEES, OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, *November* 15, 1884.

HON. GEORGE HOADLY, *Governor of Ohio:*

SIR: In compliance with law, the board of trustees respectfully submit the fourteenth annual report of the Ohio State University.

The reports of the President and other members of the faculty are made for the university year ending with the Spring term.

The report of the treasurer, so far as relates to receipts and disbursements, is made for the fiscal year of the state. The actual computation of interest on the "irreducible fund" is made, as required by law, for the set periods of January 1 and July 1 of each year. In order, however, that the financial exhibit may appear more intelligible, the accumulations of interest are shown for the fiscal periods of May 15 and November 15 of each year.

The trustees renew the oft-repeated recommendation, that section 8446 of the revised statutes be amended, so that the calculations of interest may be made to conform to the fiscal year of the state.

The general condition of the university is that of substantial, healthy growth. The facilities for both scientific and practical instruction and training have constantly increased. With a faculty keenly alive to the improvements in such facilities, to the methods of applying them, and full of the progressive spirit of the times, the university, in the short space of fourteen years, has taken place among the leading institutions of the country, and sends her sons and daughters forth to engage in successful competition with those of such other institutions in many of the arts and professions of life.

The numbers of students in attendance during the last university year were as follows: Fall term, 328; Winter term, 306; Spring term, 262. The number enrolled at the present term is 289, a material falling off in comparison with the fall term of the previous year. This is in part accounted for by the stringency in financial affairs arising from the general depression in business, the partial failure of crops and low prices of grain and other farm products. The same falling off is reported in other similar institutions throughout the country. It will be observed, however, that the falling off in numbers is mainly in the preparatory departments—the numbers in the regular university classes being only slightly diminished. Such loss is to be regretted, but does not interfere with the proper work of a university. In this connection we recall the words of President Scott in his report to the trustees for 1883:

> "It is a mistake, though a very common one, to estimate the condition and progress of an institution of learning by the number of its students. The real test is the quality of its instruction and the quality of the men and women who receive its instruction."

While approving such sentiments, the trustees desire to invite and encourage attendance in all the classes of the university, trusting that as increasing numbers crowd its doors, ample means will in some manner be provided for their proper instruction and training.

We are pleased to say that the university is still noted for the good order of its students and the propriety of their deportment. In this respect, no institution in the country has a more enviable record. Habits of order and study are soon acquired, and a spirit is manifested to make the best possible use of the opportunities so generously offered by the state.

Upon the recommendation of the faculty, the following degrees were conferred on the parties named at the close of the last term:

Eli Osborn Akerman, Columbus, O., Degree of C. E.
James Thomas Anderson, Columbus, O., Degree of A. B.
Helena Whiting Chamberlain, Amenia, N. Y., Degree of A. B.
Clayton William DeLamatre, North Monroeville, O., Degree of A. B.
Edwin Stanton Howells, Massillon, O., Degree of M. E.
Jesse R. Lovejoy, Columbus, O., Degree of B. Sc.
Clinton Van Rensselaer Mead, Jefferson, O., Degree of B. Ph.
George Luton Morton, Chagrin Falls, O., Degree of Mech. E.
Edward Orton, Jr., Columbus, O., Degree of E. M.
Annie Ware Sabine, Columbus, O., Degree of A. B.
Edward Erie Sparks, Columbus, O., Degree of A. B.
John Burket Wikoff, Columbus, O., Degree of B. Ph.
George Wiliiam Dun, Columbus, O., Degree of B. Sc.

Since the date of the last report, the general assembly has made the following appropriations for the purposes named, to wit:

Expenses of Trustees	$450
Ordinary repairs	2,500
Improvement of campus	1,000
ynamo and gas-engine	1,500
Removal and additions to library	5,000
Total	$10,450

Of the amount appropriated for ordinary repairs, $500 was expended under the direction of the farm committee of the board for repairing the farm dwelling, and the embankment which was broken by the great floods of February, 1884.

The dormitories have been thoroughly overhauled, the plastering, where fallen off, replaced, the walls of the rooms and halls papered, the ceilings kalsomined, the inside wood-work repainted, and the porches repaired and painted.

The dwelling-house occupied by the president of the faculty, which was sadly out of repair, has been thoroughly repaired by repainting and papering the rooms and halls, and the chimneys have been taken down and rebuilt. The balance of said appropriation has been used in strengthening the tower of the main building, retopping the large smoke-stack ever the boiler-house, repairing roof of main building, and boilers and pipes in chemical and mechanical laboratories, and in such patching, painting, etc., as were needed to preserve the buildings from premature decay. This appropriation has enabled the trustees to put the buildings in excellent condition.

As the number of buildings has been increased, a larger sum is now needed to keep them in repair.

No wiser economy is practiced by the general assembly than that which provides an annual sum for the preservation of the public buildings. We hope, therefore, that the appropriation for this purpose asked for elsewhere will be allowed.

The appropriation for the improvement of the campus has been expended in constructing a new drive-way through the university grounds, from the main drive to the new horticultural building, and above the spring to the street leading past the dormitories, in grading and graveling the same, in planting a well selected variety of ornamental trees and shrubs, and in tile draining the grounds where needed.

All the work has been done under the direction of Professor McFarland, superintendent of the campus.

Similar appropriations will enable the trustees to add greatly to the beauty and attractiveness of the grounds.

The appropriation for a dynamo and gas-engine has been expended in the purchase of an Edison dynamo and a seven-horse-power gas-engine, with the necessary equipment, for the physical laboratory.

The engine and dynamo have been set up in the basement of the main building, in a room formerly occupied by Prof. Mendenhall for photometric work, and have greatly increased the facilities for instruction and experiment in the physical department.

The recent wonderful development of electricity as an applied science has made it a subject of unusual interest to the scientific student, and a thorough knowledge of it of great importance. With these additions, the physical laboratory is exceptionally well equipped, and the university in this department of instruction can successfully compete with the leading institutions of the country. More room, however, is needed for laboratory work and experiments, in order to obtain the best results. The space allotted is too small for the number of students already in attendance, and their numbers are increasing. A new and separate building is much needed for this department, and we respectfully call attention to the reports of President Scott and Professor Mendenhall, transmitted herewith, wherein its necessities are more fully set forth.

The appropriation for "removing and furnishing the library and purchasing additions thereto" met in a generous spirit a long-felt want of the university. A small portion has been expended in removing the books to a more commodious room, in providing the necessary cases, shelving and furniture, and in preparing a convenient catalogue of the books, old and new. The larger portion has been judiciously expended in the purchase of carefully selected lists of miscellaneous books, books of reference and such special, scientific and technical works as were needed in the various departments of the university. By this appropriation, the number of volumes in the library has been increased to 4315 at the date of this report, and the balance unexpended will enable the trustees to add seven hundred additional volumes, for which contracts have been made, besides retaining a small sum for rebinding old books and purchasing some of the leading periodicals. No wiser aid has been extended by the general assembly to the university, or one that is better calculated to increase its usefulness. The trustees hope the general assembly will adopt the plan of making a yearly appropriation to be expended in making additions to the library, so that in time not far remote it will compare favorably with other college and university libraries. The trustees respectfully invite attention to the reports of President Scott and Professor Derby, the librarian, wherein the wants of the library and the importance of further additions are fully discussed.

A large part of the insurance on the buildings, to wit: $30,000 on the main building, and $12,500 on the large dormitory, expired during the year; $10,000 on the dormitory was renewed. That on the main building was not renewed, and there is no insurance on the chemical and mechanical laboratories, or the new horticultural buildings. The trustees, understanding that it has been the policy of the state hitherto to become its own insurer, and that the other state buildings are not insured, decided to adopt the same policy in regard to the university buildings.

Capt. Charles A. Barton has been continued during the past year as agent of the trustees in the discovery and sale of the Virginia military lands, at a salary of $25 per month. The report of the treasurer shows the entire receipts from this source and the disbursements to be as follows, viz.:

To November 15,	1878—	receipts,	$18,859.37;	disbursements,	$10,938.83.
"	1879	"	5,280.00;	"	1,127.86.
"	1880	"	7,285.08;	"	2,223.65.
"	1881	"	7,363.40;	"	3,991.48.
"	1882	"	9,870.16;	"	847.84.
"	1883	"	6,282.29;	"	722.79.
"	1884	"	3,081.51;	"	516 64.
The receipts aggregated			$57,521.81;	disbursements,	$20,368.49.

Leaving net balance of $37,153.32. Of this balance, the sum of $13,665.85 has been certified into the state treasury to the credit of the endowment fund, and $17,189.15 paid on professors' residences, as provided by act of April, 1882. The balance in favor of this fund, as shown by the treasurer's report, is $6,298 33.

The face value of the notes, good and bad, remaining unpaid at date of last report, was $15,959.79. The face value at date of the present report, as shown by report of the treasurer, is $13,447.63. In the case of a large number of these notes, the lands for which they were given have either reverted to the university and have been resold, or deeds have been made on compromises, or no payments have ever been made or deed given. The face value of such notes, as reported by the treasurer, is $8,440.58. The face value of the notes actually collectible is, therefore, only $5,007.05.

The trustees expect few additional discoveries, and when the above notes are collected, this account will be virtually closed. The history of the management of this trust has been detailed in former reports, and it is deemed unnecessary to recount it.

The detail of Lieut. George H. Ruhlen, as Professor of military science and tactics at the university expired with the close of the last university year. Previous to its expiration the board unanimously requested his re-detail, which was respectfully refused by the secretary of war, as opposed to the settled and approved policy of that department.

Under the wise direction of that valuable officer the military duties and exercises of the institution were popularized. It is with a feeling of pride we learn that one of the students of military science and tactics under his charge, and a graduate of the class of 1884, James T. Anderson, A. B., has passed the rigid competitive examination required for admission to the army of the United States, and has received his commission from the president.

While acting in the above capacity, Lieut. Ruhlen also discharged the duties as ass't professor of mathematics, and the loss of his services in both departments was deeply regretted. The vacancy caused by the expiration of his detail has, however, been acceptably filled. A number of officers of the regular army, of high character and honorable record, were applicants for the position, and after a careful and considerate examination of their records and recommendations, Lieut. Augustus P. Blocksom, of the 6th cavalry, a graduate of West Point of the class of 1877, was recommended by the Board, and was assigned by the secretary of war to duty at the university. Lieut. Blocksom's testimonials as to character and attainments are of the highest order. He entered upon his new duties at the beginning of the present term with intelligence and zeal that assure the continued excellence and progress of the military department of the university. Lieut. Blocksom has also been appointed ass't professor of mathematics.

The trustees, impressed with the growing interest manifested in the branches of study most closely related to agriculture, horticulture and botany, and desirous of making the benefits of the University in this direction as far reaching as possible, at their meeting in July, 1888, formally established the chair of agricultural chemistry. Difficulty was experienced in obtaining a suitable professor for the chair, as the field is new and but few persons have had the requisite special training and experience to fully qualify them for the important work. This difficulty has, however, been overcome, and Professor H. A. Weber, Ph. D., late of the Industrial University at Champaign, Illinois, has been elected to said chair, and entered upon his duties at the beginning of the present term. An arrangement has been entered into, by which a portion of his compensation is paid by the agricultural experiment station, an arrangement which is mutually beneficial and profitable. It will be necessary, in order to make this professorship fully meet its requirements, to fit up a special laboratory where the proper work can be done. At present such appliances as are needed have been borrowed from the chemical laboratory, at however great inconvenience to the latter. A full separate equipment is absolutely essential to its proper conduct, and the general assembly will be asked for an appropriation for such purpose. In thus seeking to make the university meet the growing demands of the great agricultural interests of the state, we feel assured that the request for such appropriation will be granted.

Professor F. H. Eldridge, Ass't Engineer, U. S. Navy, who, during the last university year, acted as assistant in the physical department, has at his own request been transferred to the department of mechanical engineering as professor of steam engineering.

The foregoing are all the changes that have been made in the faculty since the date of the last report.

During the summer the finishing touches have been given to the new horticultural building and green house, a full description of which was given in the last annual report. The building was fitted up for occupancy during the summer vacation in as economical a manner as possible, and a competent florist was appointed to take charge of the green-house. A number of fine plants have been procured from private gardens and the green-houses at the public institutions. Many cuttings were also obtained, which were potted and cared for so admirably, that there are now in the green-house several thousand thrifty, growing plants, many of them rare and valuable, a description of which will be found in the report of the professor of horticulture and botany.

The object of the green-house is to illustrate plant-culture under glass, to preserve and propagate various plants for purposes of study, for ornamenting the grounds and for performing various experiments in horticulture.

The location and arrangement of the buildings leave little to be desired. When properly equipped it will afford unequaled facilities for study and training in this important department.

The agricultural experiment station, which had its offices, laboratories and storage-rooms in the chemical laboratory building, has removed the same to the horticultural building, and has joint use of the basement and green-house for conducting its indoor experiments.

Previous to the close of the last university year, the faculty, with the approval of the trustees, adopted a short course in agriculture for the benefit of those students from the farm who do not desire to complete the full course requisite for obtaining the degree of bachelor of agriculture. The trustees are hopeful that when such short course shall have been more fully advertised, it will attract a large class of the students for whose benefit it is specially provided.

On this subject attention is invited to the important suggestions contained in the report of Professor Townshend.

In the department of mechanical engineering, presided over by Professor Robinson, we are glad to report commendable progress. The mechanical laboratory has afforded excellent opportunities for scientific and practical instruction in the mechanic arts, and many good judges have expressed the opinion that, considering the means expended in building and equipment, it is the most convenient, economical and efficient in the country. No additions, however, have been made to it since 1879. Since that date great improvements have been made in the machinery and appliances used in such a laboratory, and in order to keep pace with those institutions with which the university is in active competition, it is necessary that improved apparatus should be obtained for practical instruction in this important field. To make the mechanical laboratory meet the present demand, a considerable addition to the present equipments should be made.

The articles needed and their probable cost are set forth in the report of Professor Robinson. They cannot, however, be supplied, unless the general assembly will make the necessary appropriation. The advantages of increased facilities for training the industrial classes, who are seeking instruction in the mechanic arts, should commend it to favorable consideration.

While considering the condition and progress of this department, the trustees are pleased to state, that Mr. C. F. Marvin, Mech. Engineer, a graduate of the university, of the class of 1883, who, during the last year filled the place of assistant in the mechanical laboratory, has, after a competitive examination, been appointed junior professor in the U. S. signal service at Washington, and has entered upon his important duties. Previous to this appointment he had been transferred to the physical department. The vacancy thus made in the physical department has been filled by the appointment of J. E. Randall.

The number of students in the department of chemistry is the same as last year. There is continual growth and expansion in this department, and pressing demands for increased facilities for study, notwithstanding the exceptional opportunities afforded for laboratory work.

The trustees respectfully call the attention of your Excellency to the important suggestion of Professor Norton as to the wisdom of establishing at the university a special course for pharmacists, and providing the necessary outfit for proper instruction and training in such course. This has become a subject of wide public interest, because of the act of the general assembly at its last session, providing for a state board of pharmacy, and requiring an examination of those who propose to engage in that calling. Such a course could be maintained at the university with very little increase of the present teaching force, and that could be obtained at small cost. The principal expense would be in obtaining a supply of drugs for manipulation and experiments.

Special attention is called to the recommendations of President Scott and Professor Tuttle, for the establishment, at the university, of a museum of veterinary science. The great aggregate value of live stock owned by the people of the state, the large percentage of loss by disease, the prevalence of epidemics, the increased danger of spreading the same by contagion offered by the great railroad lines crossing the state, the prevailing ignorance and the scarcity of those specially qualified to treat such diseases, make the subject worthy of careful consideration.

Attention is also called to the reports of the other departments of the university which have not been specially named, in many of which will be found important suggestions looking to the material progress of the university.

The farm management has been continued in the same manner as heretofore, the professors of agriculture and horticulture being in charge respectively of the field and garden experiments, and the regular farm operations being conducted by a farm manager, under the general direction of the farm committee of the board. For a detailed history of the experiments, reference is made to the reports of the farm manager and the professor of agriculture and horticulture.

Much of the labor in the fields, gardens, and in the care and management of the dairy, is done by students, who are thus enabled to pay a portion of their expenses while attending the university. The excess of the products of farm and gardens over those used is applied in improvements, fencing, draining, fertilizing, etc., so that every year shows marked improvement in the general condition of the farm, its buildings and appurtenances.

The annual reports of the experiments are widely sought after by the farming community, and have a tendency to awaken deeper interest in agricultural pursuits.

It is a subject for congratulation that the agricultural experiment station continues its investigations at the university. An arrangement was entered into in 1882, whereby such station has the use of a portion of the farm for field experiments, has its offices, laboratories, and storage-rooms at the horticultural buildings and the use of the greenhouse for experiments, etc. In exchange for those benefits the university is to receive the excess of products over those needed by said station for seed, museum purposes, and the like, and pays a portion of the salary of the agricultural chemist. Such arrangement has so far en very satisfactory. The experiments on the farm are under the general direction of the professors of agriculture and horticulture, and afford an additional valuable means of training.

We are also pleased to state that the ohio meteorological bureau still has its head-quarters at the university, with Professor Mendenhall in charge as director. The number of its stations has greatly increased during the past year, and the railroad weather signals have been more widely extended. Instruments of precision have been added to its apparatus, of which the physical department has the joint use, and which increase its facilities for instruction and experiment. Though entirely separate from the university, the trustees take pleasure in noticing its close connection therewith, and take pride in its growth and development.

The winter course of popular lectures for the benefit of the farming element of this state was not as well attended as heretofore, owing probably to the stringency in finance affairs and the extreme cold weather prevailing at the time.

It has been deemed expedient to continue such course during the coming winter.

The attendance of the members of the faculty at the farmers' institutes held throughout the state, under the joint direction of the trustees and the state board of agriculture, has the cordial approval of the board. They have had great influence in awaking wider interest in agricultural matters throughout the state, and it is desirable that their far-reaching benefits may be extended. With this in view, the trustees annually set apart a small sum to pay the expenses of members of the faculty who attend them. The outlay is more than compensated by the opportunity thereby offered for a wider diffusion of the practical objects and aims of the university.

The general course of instruction is set forth in another part of this report, under the head of "departments and range of instruction," which gives the different courses and the names of those in charge. It will be seen that the educational corps is made up of 15 regular professors, 1 assistant professor, 1 instructor, and four assistants.

The report of the treasurer, and all other matters relating to the university required by law to be mentioned in the report of the trustees, will be found in their appropriate places in the body of this report.

The trustees will ask the general assembly for the following estimated appropriations for the next fiscal year:

Ordinary repairs	**$3,000**
Expenses of Trustees	**600**
Improvement of grounds	**1,500**
Care of green-house	**600**
Library	**8,000**
Equipment of laboratory for agricultural chemist	**2,500**
Additions to mechanical laboratory	**2,500**
Veterinary museum	**8,000**
Equipment of horticultural department	**400**
Fuel and care of buildings	**3,000**

We have above called attention to some of the special wants of the university. The Virginia military lands having been about all sold, no further discoveries being expected, and little addition to the receipts from that source being anticipated, the income of the university has now reached its limit. It cannot keep abreast of progress, nor successfully compete with other institutions of the kind without a material addition to its present income.

The additions to the buildings, while absolutely indispensable to adapt it to its proper work, have largely increased the current expenses of the institution. These buildings have to be cared for, heated and lighted, additions and changes in the equipment have to be made, the expenses of which must be paid out of the current funds. Additional buildings and additional instructors are needed to meet the enlarged scope the university must occupy in order to fulfill the high purposes for which it was established. The state, in accepting the grant of congress, pledged its faith to maintain its efficiency and provide for its progress and development. To the state it must look for the material aid it must receive, if it makes the progress its friends hope for it.

The liberal and practical education of the industrial classes in agriculture and the mechanic arts, and in the branches of learning related thereto, which the institution is designed specially to promote, and to which the best efforts of the trustees and faculty have been directed, should receive a larger share of public attention and larger appropriations for its support.

The trustees, in their last annual report, recommended that one-twentieth of a mill on the general tax duplicate of the state be set apart for the support and maintainance of the university — an addition to the public burdens so small that it would scarcely be felt. The argument in favor of such aid is strongly stated in the report of President Scott for last year, as follows:

"If we are to maintain this university in a manner at all adequate to the great possibilities that belong to it, other and ampler sources of revenue must be opened·

* * * What is needed to open these broad and inviting fields and to develop in the university the power to enter and possess them, is that Ohio shall do what Michigan has done and what Wisconsin has done. What is needed is a legislative act that will place the university side by side with the public schools and the benevolent institutions of the state. One-twentieth of a mill on the tax duplicate, added to its present resources, would afford to the university an income somewhat commensurate with the dignity of the state and the character of university education. A tax so slight would be felt by no one. The man who pays tax on two hundred dollars, would contribute to the university just one cent a year. The man who pays tax on twenty thousand dollars, would contribute to the university just one dollar a year. The advantages of this plan are so great and so obvious, that they hardly need to be named. I will specify a single one. To administer an institution with success, it is necessary, not only to have funds but to know beforehand how much will be available. Otherwise no definite plans could be formed. No new department could be founded. No new professors could be elected. For it might happen that in another year there would be no money to support them. On the other hand, if a given sum is fixed and can be depended on year after year, it will be possible to shape the whole policy of the university with confidence."

The sum which would be realized from this tax would enable the trustees to meet the growing wants of the university, and to place it upon such a financial basis, that the hundreds of youth who now seek outside of the state the opportunities not now afforded at home, would crowd its class-rooms and laboratories; they would be nearer the sacred influences of home, and the saving thereby effected would, in a great measure, compensate for the outlay. We earnestly renew such recommendation, and commend it to the thoughtful consideration of your Excellency and the general assembly.

Very respectfully,

ALEXIS COPE, *Secretary.*

ANNUAL REPORT OF THE PRESIDENT FOR 1883-4.

To the Board of Trustees:

I have the honor to submit the following as my second annual report:

Since my last report there have been a few changes in the faculty. The first was the retirement of Lieutenant Ruhlen from the military department by expiration of the time of his appointment, and the detail of A. P. Blocksom, First Lieutenant 6th Cavalry, U. S. A., as his successor. Lieutenant Ruhlen was successful both as an officer and as a teacher, and his departure was a matter of general regret. Lieutenant Blocksom entered on his duties at the beginning of the present term.

Another change was the election of Professor H. A. Weber to the chair of agricultural chemistry. He began his work at the opening of the year.

Lieutenant Eldridge, who has acted for the last two years as assistant in the department of physics, was transferred at the close of the last year to the department of mechanical engineering.

The work of the year has, in general, been well done. The instruction has been conscientious and thorough, and the application of the students earnest and painstaking. The number of students in attendance for the college year was 347. The catalogue number was 355.

THE PREPARATORY WORK.

I would renew the suggestions made in my report of last year respecting the preparatory classes. More than half of the members of the faculty have some preparatory work. While this is of great advantage to the preparatory students, it is much to the disadvantage of the students in the collegiate classes. It also seriously impairs the work of the professors by consuming their time and diverting their energies. I regard it as one of the most important ends to be attained by an increase of our resources, that the preparatory work should be made a separate department and placed in the hands of teachers specially appointed for it.

The importance of an increase in the number of teachers will appear from a comparison of the present number with that in other institutions. In the collegiate department of Michigan University there is one teacher for every thirteen students, of Harvard one for every twelve, of Minnesota one for every ten; while in the Ohio State University there was last year one teacher for every seventeen and a half students.

Of course some of the classes contain less than the average, but others are proportionally large. The classes of excessive size are preparatory, yet these are the classes that should be smallest, in order that, while the student is learning elements and forming his mental habits, he may receive the most personal attention and instruction.

IMPROVEMENTS.

The year has been marked by gratifying material progress. The various laboratories have received important additions; the library has been removed, and enlarged by recent purchases; the new horticultural hall has been completed; and the grounds have been much improved.

The rooms and corridors of the dormitories have been painted and papered, and some other needed repairs have been made. These buildings are now in excellent condition, and the recent improvement will contribute greatly to the comfort of the students who occupy them. They continue to be very popular, vacancies in them being filled as fast as they occur.

LECTURES TO FARMERS.

The arrangement under which a course of lectures to farmers has been given annually, for several years at the university, was continued last winter. The course lasted two weeks, during which about forty lectures were delivered. The attendance, however, was not so great as it had been the preceding year. Financial depression affected the farmers to some extent, and many were not willing to incur the expense of attending. The weather also was very unfavorable, being the coldest of which we have any record in this state, with a deep snow on the ground. These drawbacks were of a temporary kind, and may not occur together again for many years.

OTHER AGRICULTURAL INTERESTS.

The year has furnished decisive proofs of the fidelity of the university to the interests of agriculture. Two noteworthy events of this kind have occurred, both of which have been already mentioned. One is the completion and occupancy of the new horticultural hall. This building affords to the department of horticulture and botany vastly improved facilities for its work. The increased amount of room, the cases and collections, the conservatory and its stock of plants, are some of the signs of growing power and efficiency. A few hundred dollars are still needed for the purchase of additional equipment for the laboratory, but this, I do not doubt, will be promptly supplied. Your attention is asked to the statement of Professor Lazenby for detailed information respecting the wants of the department.

The same building has enabled you to place at the disposal of the agricultural experiment station some much-needed rooms. The station now has offices, work-rooms, and store-rooms which are conveniently arranged and afford accommodations for all in-door purposes.

The other event to which I refer, is the election of a professor of agricultural chemistry. This is a department of which the friends of agriculture in Ohio have long been.desirous. I believe that it has been placed in competent hands and will fulfill all reasonable expectations. The young farmers of the state have now a better opportunity than ever to obtain an efficient practical training, and we hope that many of them will avail themselves of it.

Since agriculture is, by the terms of our foundation to be a leading object of study, nothing should be omitted that will contribute to the growth and success of this new department. To fit up the laboratory in a manner corresponding to its importance and to the other laboratories of the university, will require an appropriation of about four thousand dollars. For information in detail, concerning the wants of the department, I refer you to the statement of Professor Weber, which is herewith submitted.

THE SHORT AGRICULTURAL COURSE.

About a year since, a short course of two years in agriculture was adopted and published. This course, including as it does, a year of agriculture, a year of veterinary science, and a year of agricultural chemistry, besides general science, gives to young men who come from the farm an excellent opportunity to obtain in two years a line of special study well adapted to their wants. We desire to encourage in every way the attendance of this class. None receive a warmer welcome. None are offered greater encouragement. And we hope that the announcement of this course will induce many of them to seek a better education.

VETERINARY INSTRUCTION.

With these evidences of progress the year has also brought a reminder of an important deficiency. The presence of pleuro-pneumonia among the cattle of the state has caused some alarm. This alarm was no doubt exaggerated, yet every year destructive diseases are liable to break out among the live stock of the state, and it is a matter of serious concern to the farmers and other stock owners, that the best skill and training shall be available in such emergencies. It gives me pleasure to say that the university is doing much to supply this need. Dr. Townshend brings both enthusiasm and the practical experience of a lifetime to the work of instruction in veterinary science. But he is required to carry also the work of instruction in agriculture; whereas veterinary science alone affords a field wide enough for a college with an entire faculty of its own. A large proportion of the wealth of Ohio is invested in live stock, and the protection of it, by providing for the instruction and training of veterinary surgeons, is one of the plainest dictates of prudence. At present there is no veterinary college in the west, and those in the east do not pay special attention to any of the domestic animals, except the horse and the dog. There is certainly a demand, then, for the establishment of a first-rate veterinary school, and there is no more suitable place for it than the state university.

In this connection I would call your attention to the requests presented by Professor Tuttle, for the means to extend the working facilities in his department and that of Dr. Townshend. These requests contemplate equipment for veterinary as well as physiological work.

The vigorous growth of the physiological department should be a matter of gratification to the friends of the university. Whatever may be done to strengthen it will yield abundant returns.

MECHANICAL ENGINEERING.

I trust that you will also give favorable consideration to the claims of the mechanical department. The report of Professor Robinson contains a statement of the needs of the laboratory; and the excellent use that has been made of what has heretofore been placed under his control justifies his request. If we expect to maintain the high standing of the institution, this department must be kept well up with the general progress in mechanical engineering.

RELIGIOUS EXERCISES.

The daily assembly has been maintained throughout the year, the attendance being regular and cheerful. A choir composed of students has voluntarily conducted the musical part of the exercises in a very creditable manner. The other part of the exercises usually consists of the reading of a portion of Scripture, and prayer. Sometimes, however, selections are read from eminent ethical or religious writers, and sometimes a brief address is made by a member of the faculty or a visitor.

THE LIBRARY.

A year ago the library occupied a small room on the first floor of the main building. During the summer vacation it was transferred to the large room on the third floor which was made vacant by the removal of the botanical department. New cases have been made, and a much larger space than formerly has been set apart for reading and study. The total expense of fitting up the room and of removing and arranging the books has been less than six hundred dollars, leaving more than four thousand four hundred dollars of the recent appropriation to be expended for books. Of this sum eighteen hundred dollars were set apart by your committee for the purchase of books for the general library, and two thousand two hundred dollars were set apart for the purchase of such books as might be selected by the heads of the different departments. About one thousand five hundred dollars of the former fund have been expended, and most of the department lists are in the hands of dealers.

The improvement which these changes and additions have made in the library is very great and will increase the efficiency of every department. And yet, after the whole appropriation of five thousand dollars has been consumed, we shall have scarcely more than five thousand volumes. It will still be one of the smallest college libraries in the country, and will be but the beginning of such a one as the university ought to possess. Another addition equal to that of the present year should be made immediately, after which smaller ones, costing two or three thousand dollars, should be made annually.

OTHER CHANGES.

The removal of the library left vacant a room on the first floor, which has been converted into a recitation room and is occupied by the president. His former room on the second floor is occupied by the professor of history, and her former room on the third floor has been assigned to the professor of Greek, while his former recitation room has been transferred to the Browning Literary Society, for a hall, and the small room, which he used in connection with it, has been given to engineering association. Thus some of the more immediate demands for room have been met. But others of much greater magnitude remain.

WHAT IS STILL NEEDED.

The geological museum has almost reached the limits possible to it in its present location. It is already an exceedingly valuable collection; but, if allowed the opportunity, it will become more valuable every year. I cordially second Dr. Orton's suggestion, that a new building should be erected for it at an early day.

The department of physics is much confined in its present quarters and the need of additional space, to which I referred in my former report, is growing more and more imperative.

A hall to accommodate large assemblies, an astronomical observatory, a gymnasium, and a drill-hall and armory, must all be provided before the wants of the university are adequately met.

In these statements I but repeat what I said in my report a year ago. I wish to repeat also, that new departments and new men are needed as well as new buildings. Departments of industrial art, architecture, pharmacy, political and social science, rhetoric and oratory, and the science of teaching, ought to be created as soon as the means at your command will admit.

I make this extended enumeration of wants in order to emphasize the greatness of the work that is before us. It is necessary that we should devise large plans and put forth united and earnest efforts. The university has vindicated its place. It has raised and sustained a high standard of work. It has used worthily whatever it has received. It has rendered a service of the first importance to the state and to the cause of education.

But what it has done should be regarded only as a sign of promise. It gives assurance of what, with an adequate endowment, it may do, and points to a future rich in benefits to society and the state. University education is so broad in its scope, and so varied in its forms, that it can not be properly conducted without a large body of instructors and a liberal expenditure for buildings, books, and apparatus. In these respects the leading universities of this county, and in a much higher degree those of the old world, are incomparably superior to ours. With them the thousands of our endowment are tens of thousands, while their equipment, and the numbers of their professors and students, surpass ours in at least an equal ratio. As a consequence they are attracting the young men of our own state away from the doors of our own institution.

Students from Ohio are to be found in all of the strongest colleges of other states. The effects of such a dispersion are not, indeed, to be altogether deplored. These men will doubtless return with an accession of new ideas and with a higher and more general culture. But while these effects of the exodus of students should be welcomed, the cause is by no means to our credit. Ohio ought to offer to her sons the means for an education as thorough, as comprehensive, and as liberal as that to be obtained anywhere in the United States. Her geographical position and her natural resources have predestined for her a commanding influence. Her vast population must always furnish a large class who will both need and desire the best educational advantages that it is possible to secure. Her interests, economical and social, political, educational, and moral, will demand the intelligence and skill of men of the highest knowledge and training. And her wealth, already so great and in the natural course of things certain of so steady an increase, put it in her power to provide in the most ample and even affluent manner for this chief want.

The university ought to be the favorite institution of the state. The governor, the legislature, and the people should vie with each other in promoting its interest and in building up its prosperity. The charities of Ohio are munificent, and stand as monuments of a spirit, broad and bountiful, as becomes a christian people. Upon the blind, the dumb, the imbecile, and the insane, she is bestowing a noble sympathy and care. But her hope lies in a very different class of her population. Her future depends on her young men and women who have the possession of all their faculties. To them will soon be committed her wealth, her influence, and her renown. On them will soon rest the responsibility of her charities, her business interests, her political welfare, and her intellectual and moral progress.

Every one recognizes the fact that a higher order of education is necessary in our day than in the time of our fathers. The conditions of society have so changed, its interests have become so complex and diversified, intelligence has been so greatly increased and so widely diffused, that the educational means and methods of a former generation are wholly inadequate in this. But we do not so easily see that the next generation will need advantages as much superior to ours as ours are superior to those of a generation ago. We have only begun to appreciate the necessary conditions of higher education, and hence we have only begun the work of endowing our institutions of learning.

While, therefore, we ask the state for temporary appropriations to supply present exigencies, let us not forget the still more important question of a provision for the future. We build for coming generations. Our concern is the future intellect and character of a great commonwealth. In an enterprise of such magnitude and dignity it is the part of wisdom to frame a magnanimous policy and to carry it forward with an eye constantly directed to the fulfillment of a great ideal.

The first condition of a real university is that an ample income shall be permanently assured. This given, with the sagacity to use it, and all else will follow. These will create buildings, libraries, laboratories, and whatever other material element is required; and they will command the services of the highest talent and learning. Let us urge upon our legislators by every argument and with all earnestness, the importance of immediate measures for enlarging our revenues. The people will sustain them. No subject lies nearer to the heart of the citizen of Ohio than the education of his children. He pays no part of his tax so cheerfully as that which is devoted to the maintenance of the public schools. The twentieth of a mill on the grand duplicate would rest so lightly on the people as to be unfelt. What man who pays taxes on a valuation of two hundred dollars, would complain that one cent of the sum he pays is given to the support of university education? What man whose assessment is twenty thousand dollars, would complain that one dollar of what he pays is devoted to that purpose? And yet these minute sums would form an aggregate sufficient to put this institution in the foremost rank of American universities. Michigan and Wisconsin, both of them younger than Ohio by many years and poorer by many millions of dollars, have given to their universities the twentieth of a mill on their grand duplicates for ten years past. As a result, their universities are flourishing and influential, rendering to society an incalculable service and shedding upon the fostering states their most distinguished honor. But it is probable that these states will not stop here. I am informed that an effort will be made to increase the share of the universities in the income of those states to one-tenth of a mill.

It is evident, therefore, that if Ohio is to keep abreast of her vigorous and catholic-minded sisters, she must begin at once an enlightened and far-reaching policy. If she is not to be distanced in the race, if she is not to fall behind in intellect, in knowledge, in social distinction, and in political power, she cannot afford to neglect her university. The time has come for decisive action. This year should mark a long stride forward. It should raise the university at once to a higher rank and place it on the road to greatness by a liberal and *permanent* provision for its support, Let us, at least, who are the custodians of its interests signalize the year by a united and resolute effort to accomplish this important result.

I submit herewith the reports which have been received from the heads of the several departments of the university.

WILLIAM H. SCOTT.

DEPARTMENT REPORTS.

DEPARTMENT OF GEOLOGY.

President W. H. Scott:

DEAR SIR: I present herewith the report of my professorial work for the year ending June 18, 1884.

The subjects of instruction included in my department remain unchanged. They are as follows: Geology, General and Economic, and Physical Geography. General Geology occupies two terms in the Junior Year of all of the courses leading to the degrees of the institution, and Economic Geology one term in all of the engineering courses, and also in the agricultural course. Physical Geography has occupied hitherto a single term the first year of the Preparatory Department, but by recent action of the Faculty it has been placed in the Second Preparatory Year. Though occupying but a single term nominally, the number of students required to take the study is so large that there are always two and often three sections of the class. During the last year there were three sections continued through two terms, numbering in all 74 students. Two of these sections, in the fall and winter terms, were taught by Mr. C. S. Coler, A. B., an experienced and successful teacher, whom I was obliged to employ in order to secure a little time for the completion of the volume on Ohio Geology that I had in hand.

The Junior Class in General Geology numbered 26 members, and the Class in Economic Geology 8 members.

Inasmuch as special professorial instruction in English composition and elocution is still wanting in the college course, I maintained, during the year, the rhetorical exercises already established. Though inadequate in every way, it is believed that these exercises, with the opportunities for public speaking that they afford, and with the criticism to which such speaking is subjected, are better than nothing. The members of the regular college classes above the Freshman Class are subject to duty in this field. During the year there were 75 students on the lists.

The appropriation made for the Geological section of the Library was very timely and serviceable. It has enabled me to extend, though not to complete by any means, the list of State Surveys and other authentic works on the geology of the country. I have also added a number of fresh volumes on the recent phases of geological science, which are greatly needed by my students.

I desire to call the attention of the Board, through you, to the prospective needs of the Geological museum. The room in which it is now located, though undoubtedly the best for the purpose that the main building affords, is becoming inadequate to the demands of the collection, and, in fact, is already imposing limits upon its natural growth. The available floor space is largely occupied, and although the height of ceiling would allow the construction of galleries which could be made to double the present capacity of the room, I do not desire to see them added, for the reason that the room was not designed for so heavy a burden as would thus be imposed upon it. So great a weight as a museum designed upon the scale of our own, and largely devoted to Economic Geology renders necessary, ought to be provided for in the plans of construction of the building which contains it.

My hope is that in any building to be hereafter constructed on the university grounds, the needs of the museum may be considered. If a suitable place can be provided for it, I can guarantee a rapid growth of the collection in all of its various lines. Very respectfully yours,

EDWARD ORTON,
Professor of Geology.

Ohio State University, November 8, 1884.

CHEMISTRY.

COLUMBUS, OHIO, *November* 1, 1884.

WILLIAM H. SCOTT, *President Ohio State University:*

DEAR SIR: I have the honor to present this my twelfth annual report of the Chemical Department of the State University.

The total number of students enrolled during the past year was—

In elementary chemistry	88
In analytical chemistry	20
Total	108

Both sections continued the study throughout the year, with an average attendance of about 90

The work accomplished was fully equal to the average; the number of failures considerably less than in former years.

The year was marked by the removal of the Department to the new Laboratory The increased facilities in the new quarters are so great and so evident, that it would seem captious to mention that any thing has been left undone or that we are not now fully equipped. In point of fact, the outlay of money which will be required from time to time to meet deficiencies in equipment will not be great; but it must be borne in mind that the science of Chemistry is continually growing, and that it is incumbent upon the University to keep pace with the new discoveries of facts and the new methods of presenting them. Nevertheless, it is necessary now to mention that there are sundry small details required in the finishing of two of the rooms, in the matter of curtains and such like items. I again beg for additional case-room to hold specimens, which may serve to illustrate the applications of Chemistry to the arts. I think that if shallow cases were placed between the windows in the lecture-room, and a small fund provided for bottles, trays, etc., I could soon increase our facilities for instruction in "Industrial Chemistry" at very little expense and to the very great profit to our students. Our present case is crowded, and we are hampered in classifying the stock we have on hand for want of room.

I renew my request for a complete set of Liebig's Annalen, and in this am joined by the other Professors who have to deal with Chemistry. Our stock of periodical literature should be greatly increased in Chemistry and in all the Natural Sciences.

Mr. David O'Brine has continued to act as Assistant and Accountant for the Laboratory, and has rendered efficient service. He has also conducted a voluntary class in Materia Medica with success. Three of his students, all that applied, passed a satisfactory examination before the State Board of Pharmacy.. This experiment indicates that a field is open in this direction to the University, and it is in my power to add that if suitable facilities were offered, it would be easy to obtain the services of a competent pharmacist at a nominal salary, who, by supplementing the work of our present force of instructors, could easily arrange a course of study which would satisfy the requirements of the State Board of Pharmacy. Moreover, I believe that it is desirable that the University should undertake this work, because the State requires that young men intending to become druggists, should pursue a course of study in Science, but has made no provision for it.

The Department furnished facilities for the Farm Superintendent to make a large number of analyses relating to milk and meal. Besides these, considerable work was done by Mr. O'Brine and by the older students of similar character.

Finally, I renew my statement that I am fully persuaded that the University should provide a course leading to a degree of Chemical Engineer.

Very respectfully,

SIDNEY A. NORTON.

AGRICULTURE AND VETERINARY MEDICINE.

President W. H. Scott:

DEAR SIR: I beg to submit the following report of work done during the past year in the Departments of Agriculture and Veterinary Medicine.

Through each of the terms of the college year the two classes in Agriculture have together averaged fourteen. The young men in these classes manifested commendable earnestness, and made satisfactory progress. From the commencement of the present year the advanced class in Agriculture has received instruction in Agricultural Chemistry from Prof. Weber, and only students of the junior class in Agriculture are at present under my instruction.

The two years' Agricultural course which was announced in the last annual report of the University, has not received a hearty response from the young farmers of the State, nor brought to the University an increase of students. Heretofore farmers have sometimes objected to sending to the University such of their sons as were intended for agricultural pursuit, on account of the length of time required for a full course. Consequently students have been allowed to mark out for themselves shorter courses, and to take only such studies as their limited time would permit. In the report and circular of last year young farmers were invited to a short but well arranged Agricultural course of two years, embracing Mathematics, Physical Geography, Physics, Chemistry, Botany and Horticulture, Physiology, Mechanics, Practical Agriculture and Veterinary Medicine. It was expected that a large number of students would gladly avail themselves of this opportunity. This expectation, however, has not been realized, and from the entire State only six students are attending the special Agricultural course. Possibly this small attendance may be due in part to insufficient advertising, for there is reason to suppose that many more would have improved such an opportunity, had it come to their knowledge. Possibly another reason why young farmers have not entered the University in greater numbers, may be found in the condition of our ungraded country schools, and the inability of their pupils to meet the requirements for admission to the University. The graduates of many city high schools are permitted to enter the freshman class, and any good student who has for a time had the benefit of a village, or graded school, can readily enter the preparatory department. But such is the condition of many ungraded country schools in agricultural districts, that pupils who have enjoyed no other advantages in many instances cannot pass a creditable examination in such branches as Geography, Grammar and Arithmetic—still less in Algebra. Consequently, students at the University are principally from cities and villages, while but few are from the country. Is there not reason to suppose that the limited number of agricultural students at the University may be due in part at least to the insufficient interest which many farmers take in the condition and welfare of country schools?

VETERINARY MEDICINE.

During the past college year the class in Veterinary Medicine has averaged nine students, and the progress made was very creditable. The class for the present term consists of twelve students. The increased interest which is manifested in Veterinary studies may perhaps be taken as evidence that the close relation between successful stock-raising and Veterinary Science is beginning to be understood.

The lectures given to farmers at the Ohio State University in January last were not as well attended as the course of the previous year. Some who had expected to attend have explained their absence by reference to the extreme severity of the weather about the time the lecture course commenced.

With great respect, yours,

N. S. TOWNSHEND,
Prof. of Agriculture.

Columbus, November 1, 1884.

DEPARTMENT OF MATHEMATICS AND CIVIL ENGINEERING.

W. H. Scott, President:

SIR: I have the honor to submit the following report of the work done in this double department, for the year ending June, 1884:

Fall Term, 1883—Algebra, 24; Geometry, 30; Trigonometry, 48; Analytical Geometry, 18; Mahan's Civil Engineering, 5.

Winter Term, 1884—Algebra, 27; Geometry, 30; Descriptive Geometry, 15; Differential Calculus, 16; Astronomy, 33.

Spring Term, 1884—Astronomy, 26; Integral Calculus, 13; Trigonometry, 5; Geodesy, 5; Drawing and Lettering, 5. Total, 300, under my personal direction.

CLASSES TAUGHT BY ASSISTANT PROFESSOR RUHLEN.

Fall Term, 1883—Algebra, 14; Geometry, 24; Trigonometry, 10.

Winter Term, 1884—Algebra, 15; Geometry, 17.

Spring Term, 1884—Trigonometry, two sections, 36. Total, 116.

CLASSES TAUGHT BY ASSISTANT G. W. MCCOARD.

Fall Term, 1883—Algebra, 17; Geometry, 9; Trigonometry, 5.

Winter Term, 1884—Algebra, two sections, 32; Geometry, 15.

Spring Term, 1884—Trigonometry, 14; Surveying, 5. Total, 96.

CLASSES TAUGHT BY ASSISTANT C. N. BROWN.

Fall Term, 1883—Algebra, 21; Surveying, 14; Henck's Field Book, 8.

Winter Term, 1884—Algebra, 26; Descriptive Geometry, 22; Bridge Strains, 8; Shadows and Perspective, 3.

Spring Term, 1884—Surveying, 23; Descriptive Geometry, 9; Civil Engineering, 6. Total, 140.

In the department the total of all the classes is 652.

The work, in general, in all the classes has been satisfactory. Field-work for the engineering classes, is carried on in the fall and spring terms, every day when the weather permits. It consists in ordinary field and farm surveying, leveling, measuring heights and distances, setting out curves, cross-sectioning, mapping with the plane table, manipulating the sextant and the solar compass,—in fine, practicing almost every kind of work pertaining to the business of the civil engineer. In the winter session, when field-work is ordinarily impracticable, the classes are instructed in all kinds of drawing pertaining to engineers' work, viz.: Platting; isometric, axonometric, and topographic drawing; shades and shadows, and the general principles of perspective.

Respectfully submitted.

R. W. MCFARLAND.

Ohio State University, October 31, 1884.

DEPARTMENT OF ZOOLOGY AND COMPARATIVE ANATOMY.

W. H. Scott, President:

DEAR SIR: I herewith submit my eleventh annual report.

The enrollment in my department for the year that has past was as follows: Physiology, sixty-one; Zoology, nineteen; Physiological Laboratory, thirteen. Deducting for names enrolled in more than one class, there were eighty-seven students receiving instruction in this department during the year.

By a vote of the faculty, passed since my last report, Elementary Physiology has been assigned a place in the Freshman year instead of in the Second Preparatory, as heretofore. The class now receives instruction in this subject twice a week throughout the year. Among the reasons for this change may be mentioned the important ones, that the class now comes to this work prepared by their previous studies to undertake it intelligently, while the change in the apportionment of my time enables me to do much better work with my advanced students. With the advancement of this work, a change in the text-book used was made desirable. Martin's Human Body (briefer edition) has been adopted.

As a number of the present Freshman class had pursued the study of Physiology last year in the Preparatory Department, it was necessary to provide for them equivalent work this year. Some such having expressed a desire to pursue a similar line of study, I have organized a special laboratory class in anatomy for their benefit. I am so well pleased with its working that I contemplate offering (with the approval of the faculty) similar work as an alternate with Physiology for Freshmen in science.

The appropriation of three hundred dollars, made in June last, toward the further equipment of the laboratory in my charge, has been expended in a somewhat different manner than that then contemplated, the establishment of this new class in Anatomy making some unforeseen expenses necessary.

We still have need of many appliances for increasing the efficiency of the instruction in anatomy and physiology which I desire to give. The direct and practical importance of ample facilities in this direction to our scientific and agricultural students I need not urge. Permit me in this connection to submit the following suggestion which will, I trust, meet with your approval and that of the Trustees as well.

The frequent prevalence of epizootic diseases among our domestic animals gives us a constantly recurring reminder of the importance to the agricultural community of efficient instruction in the principles of veterinary medicine, and in the sciences upon which it immediately depends. All that could under existing circumstances be done in the former by one man is ably done by the Professor of Agriculture and Veterinary Science. I am striving to do all that I can in the important associated sciences of anatomy and physiology. I join with my colleague, however, in the hope that we may, at an early day, see the work now done grow into that of a distinct school of the University, with its proper faculty, from which trained veterinary physicians and surgeons may be sent into every county of the State; and this the more because no such school as yet exists west of the great cities on the eastern seaboard, and none in this country where the treatment of cattle, sheep and pigs receives equal attention with that of dogs and horses. Nothing that could be done would tend more toward this desired end, and at the same time increase the value of our present work than the ample and efficient equipment of these departments. The suggestion which I desire to make (and I am happy to say that in making it I have the full approval and hearty co-operation of my colleague, Dr. Townshend), is that the Trustees ask the Legislature to appropriate the sum of five thousand dollars to be applied for the establishment of a veterinary museum, to include preparations showing both the normal structure of our domestic animals and the diseases to which they are most commonly subject, and for the purchase of apparatus and appliances for the efficient teaching of veterinary anatomy and physiology and veterinary medicine and surgery. I feel confident that this request would readily commend itself to the good judgment and approval of the Legislature.

All of which is respectfully submitted.

ALBERT H. TUTTLE,
Professor.

State University, Columbus, Ohio, Nov. 1, 1884.

DEPARTMENT OF MECHANICAL ENGINEERING.

W. H. Scott, President:

SIR: I respectfully submit the following report of work in the Department of Mechanical Engineering during the year ending June, 1883:

First Term—Students in Analytical Mechanics, 10; in Resistance of Materials, 4; in Mechanical Laboratory, 18.

Second Term—Students in Mechanism, 5; in Drawing, 1; in Mechanical Laboratory, 20.

Third Term—Students in Mechanism, 5; in Drawing, 6; in Mechanical Laboratory, 17.

The able assistance rendered by Mr. C. F. Marvin, in the mechanical laboratory, made instruction in the laboratory much more satisfactory than in former years when I was without an assistant. This is due to the fact that in the particular kind of instruction referred to, the greater the number of teachers the better for the instruction, because each student is engaged with his own work nearly independently of the others, necessitating attention to each student personally to a great extent. My own time with the class has not been curtailed in consequence of the assistance. Mr. Marvin proved to be an efficient teacher.

I feel compelled to renew my request of last year for means with which to procure appliances for illustrating practice in the higher operations in the line of my department. For instance, standard caliper and screw gauges for securing precision in work, dynamometers, testing machines, etc., are much needed.

It is needful that there be allowed for gauges, $500; for dynamometers, $500; for an oil or lubricant testing machine, $800; for an improved machine for testing building materials, $500. Models of mechanical movements are needed for our mechanical cabinet in order that it may compare at all favorably with others. A $1,000 worth of the Reuleaux models would make a fair beginning. A grinding lathe, costing about $200, is among our needs. It is hoped that this department, among others, may be remembered by the Legislature at an early day in a liberal allowance for the purposes above named. This is the more necessary from the fact that like departments of institutions in other states have recently made great strides in the acquisition of material appliances for educational purposes.

A liberal donation to the department, which I take pleasure in remembering to you, is that of the firm of Warner & Swasey, machinists of Cleveland, Ohio, of a slide rest for our large hand lathe. This lathe is thus made to serve the purpose of an engine lathe for much of our work.

I am, yours obediently,

S. W. Robinson.

Columbus, Ohio, November 4, 1884.

DEPARTMENT OF PHYSICS.

President W. H. Scott:

I have the honor to submit the following report of the department of Physics for the college year of 1883 and 1884.

The students registered in this department during the year were classified as follows:

Elementary Physics (Second Year Preparatory)	97
Sophemore Physics	49
Advanced Physics (Laboratory)	24
Total	170

Of these, 8 are counted twice in the classification, so that the number of different students in the department during the year was 162.

By comparison with previous reports, it will be seen that there has been a continual and considerable increase in numbers from year to year.

It is gratifying to know that this increase in numbers has been accompanied by a corresponding increase in the value of the work accomplished by the students. This is to be attributed partly to the fact that they have been found, from year to year, to be more thoroughly prepared for the sort of work which is undertaken here, and very largely to the increase and improvement of the facilities of the department.

Several instruments of precision were added to the collection during the past year, but the most notable addition to our working facilities resulted from a special appropriation of fifteen hundred dollars made by the general assembly at its last session, for the purchase of a gas-engine and dynamo electric machine. The engine purchased was of seven-horse-power (nominal), and it has been placed in the basement room formerly used as a photometric chamber.

Through the generosity of the Thomson-Houston Electric Light Co., and the Edison Electric Light Co., in the matter of discounts from list prices, I was able to put in place two dynamo machines, one for arc lighting and one for incandescent lighting. Small as is this electrical plant, it is difficult to overestimate its value to the department.

The pressing need of the department is more room. Every foot of available space in the basement has now been utilized, although it is but poorly adapted to the purposes for which it is used. The necessary appropriation of the photometric room for the engine and dynamos leaves no place suitable tor work in optics, and this important subject suffers in consequence. Much physical laboratory work is of such a character as to make it impossible for more than one or two students to occupy one room, and the increasing number of students renders it necessary that many should work under serious disadvantages with our present laboratory space. The rooms now in use are peculiarly unfit for delicate and accurate experiments in electricity and magnetism, which is especially unfortunate, owing to the great importance of those subjects and the large proportion of students desiring to make a specialty of them. The only remedy is the erection of a suitable building to be occupied and used solely by the department of Physics. I hope that this question may be earnestly considered by yourself and the Board of Trustees at an early date.

Assistant Engineer F. H. Eldridge continued as assistant professor of Physics during the year He also gave a course of lectures on Steam Boilers to the students in Mechanical Engineering. At the close of the year Professor Eldridge was assigned, at his own request, to the department of Mechanical Engineering. I desire to express here my satisfaction with the entirely cordial and pleasant personal relations with him during his service as assistant and my recognition of the faithfulness with which he discharged every duty assigned him.

Mr. C. F. Marvin, of the class of '82, was selected as assistant for the present year, but just previous to the opening of the term he was appointed Junior Professor in the U. S. Signal Service. The vacancy thus caused by the resignation of Mr. Marvin has been most acceptably filled by Mr. J. E. Randall, a post-graduate student of last year.

I am, yours faithfully,
T. C. Mendenhall,
Professor of Physics.

Ohio State University, November 6, 1884.

DEPARTMENT OF MINING AND METALLURGY.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report of the work of my department for the past year:

The number of students in the classes under my instruction was as follows:

Metallurgy	10
Assaying (in mining)	5
Other special studies	2
Mineralogy	61
Total	78

This list includes no name more than once, and simply shows the number of different students who worked in the department during the year.

The current expenses of the assay laboratory, on account of students, is about $50.00 a year for supplies, wear and tear of apparatus, etc. I hope this amount may be appropriated for the current year for such purposes.

I would respectfully urge the appropriation of $75.00 or $100.00, for the purchase of minerals for this department. The collection has been in constant use for some years, and has had during that time no addition whatever to cover the inevitable deterioration due to loss and injury of specimens.

It is impossible to teach mineralogy unless students can examine and handle specimens; this means wear of the collection. I have the opportunity from time to time to purchase minerals at a reasonable rate, and if there were a small fund on which I could draw at such times, this collection could be cheaply kept up.

The work of the State laboratory in connection with the department has been kept up as usual; quite a number of analyses of general interest have been made during the year for various parties free of cost, also a number for the Geological Survey.

In connection with the State Board of Agriculture, the department has made and published during the summer and fall the analyses of over one hundred and twenty commercial fertilizers. These have been distributed in the monthly crop reports all over the State.

The present year's work opens fairly well. Of the present senior class two are candidates for the degree of Mining Engineer, this being the usual fair proportion which this department has furnished of the graduates of the institution.

Respectfully submitted.

N. W. LORD,
Prof. of Mining and Metallurgy.

DEPARTMENT OF THE GREEK LANGUAGE AND LITERATURE.

W. H. Scott, President:

SIR: I have the honor herewith to transmit the annual report of the department of Greek for the college year 1883-84.

At their annual meeting in June, 1883, the Board of Trustees, recognizing the expediency of dividing the work in the department of ancient languages, established a separate chair of the Greek language and literature, and appointed me to the professorship thus created. Upon the duties of this position I accordingly entered in September, 1883.

The course in Greek as now fully established, includes four years of college work. It should, however, be added, that, owing to the exigencies of the programme, the language is *begun* by the Freshman class, there being no previous study of it required; and, further, that the Sophomore, Junior and Senior classes have each only three exercises weekly. Thus the amount of Greek read is rather less than in a three-years' course in most colleges.

Beside my regular work in Greek, I had charge of one division of the first Preparatory class in Latin, in five recitations weekly throughout the year; so that my classes occupied, in all, nineteen hours per week; all being continued through the year.

The following table will show the membership of my various classes for the year:

	1ST TERM.	2D TERM.	3D TERM.
Senior Greek	4	4	4
Junior Greek	2	3	3
Sophomore Greek	9	10	9
Freshman Greek	16	12	13
First Preparatory Latin, "B"	14	8	6
Total	45	37	35

The work of the students in the various classes showed a high average of successful results, and an unusually large proportion remained to the end of the summer term.

A portion of the generous appropriation for the library was placed at my disposal, and some valuable and much-needed additions made to the rather meagre store of works of reference in the classical department. The rapid growth of our library will quicken and stimulate to better work all the students, and particularly, of course, those who are pursuing literary or historical studies. For books are their only tools—the library their only laboratory.

Very respectfully,

J. R. SMITH,
Professor.

DEPARTMENT OF LATIN.

W. H. Scott, President:

DEAR SIR: I respectfully submit the following report of the department of Latin for the college year ending June 18, 1884:

The total number of different pupils enrolled for the year was:

In Junior Latin	5
In Sophomore Latin	12
In Freshman Latin	30
In Second Preparatory Latin	39
In First Preparatory Latin	65

The average enrollment per term was not much less.

The large number of beginners in Latin made it necessary to divide the First Preparatory class into at least two sections: into one division were put those who had previously studied Latin not less than a year.

Of these advanced pupils, Professor J. R. Smith kindly took charge, and read with them during the year, selections from Caesar's Commentaries and from the Orations of Cicero. The good results of this plan and course of study are now plainly visible in the ease and success with which the permanent members of the advanced section are now performing the regular work of the Second Preparatory year. I can not but regret that it has not yet been found possible to secure for all who are to enter upon college work in this department three full years of preparation; none of the better colleges of the State accept less than this, and to this standard it is for many reasons desirable that we should come as soon as practicable.

The small amount appropriated to the former single department for the purchase of books and other illustrative apparatus, was divided equally between the two departments, which resulted from the appointment of a Professor of Greek, and from this source several useful books and maps added to the equipment of the classical side of the university.

In the way of instruction, the experiment is making of giving a portion of the time of the advanced classes in Latin to a study of certain periods of Roman history; the method pursued is that by topics, combined with a general view of the whole field which is made the subject of study. It is perhaps too early to pronounce a decided opinion upon the success of this plan, but I am hopeful that it will prove a good one.

Other plans for adding to the efficiency and interest of this department have been postponed on account of the large demands which the care of the library have made for the last few months upon the thought and time of the professor in charge.

He has a strong conviction, that more of his attention ought to be given to the advanced classes, and, therefore, less necessarily to the preparatory work in his department, in order that the demands upon the student may become more exacting, and the interest of the subject increase as he approaches the end of his course of study.

Very respectfully yours,
Samuel C. Derby,
Professor of Latin.

Ohio State University, Nov. 1, 1884.

DEPARTMENT OF BOTANY AND HORTICULTURE.

President W. H. Scott:

Dear Sir: I have the honor to submit the following report of the Department of Botany and Horticulture for the year 1883–4.

The tabulated statement given below presents in brief the class-room work of the year and the number of students enrolled:

	Subject Taught.	No. of Students.
Fall Term, 1883—	Economic Botany	7
	Compositæ and Gramineæ	18
	Principles of Horticulture and Fruit Culture	4
Winter Term, 1884—	Physiological Botany	2
	Cryptogamic Botany	18
	Vegetable Gardening and Seed Growing	6
	Arboriculture and Forestry	6
Spring Term, 1884—	Botanical Field Work	8
	Special Botany (Sophs.)	14
	Structural and Systematic Botany	67
	Floriculture and Landscape Gardening	4

During the present term I have classes in the following subjects:

Economic Botany	10
Compositæ and Gramineæ	26
Special Botany	2

No essential changes have been made in the method of teaching or courses of study since my last report. Instruction is given almost exclusively by lectures, supplemented by reviews or seminaries, laboratory exercises and field work. The aim is to train as well as to teach. From one-half to two-thirds of the whole time is given to the direct study of plants or their products in some form. Text-books are used mainly for reference. The fundamental idea, which is constantly kept in view, is how best to develop the faculty of observation, and prepare students to readily and accurately acquire knowledge for themselves.

In general the progress of the students has been very satisfactory, and their diligence and enthusiasm have made the work of instruction a pleasant task.

During the Spring term I was ably assisted by Mr. W. S. Devol and Mr. W. P. Bentley, two advanced students in the Agricultural course.

The new building for the Department of Botany and Horticulture was completed the past Summer, and the removal thereto was accomplished during the vacation. While not as complete in all its appointments as I could wish, it is fairly well furnished and conveniently arranged. The Green-house is well stocked and is skillfully cared for by Mr. C. A. Roth, who was appointed to take charge of the same. For this better equipment I desire to record my joyful appreciation. It can scarcely fail to place the department upon a higher vantage ground, and ought to greatly increase the efficiency of its work. The Experiment Station continues to be a valuable adjunct to the department, both as a means of illustration and training. In addition to its educational value, it furnishes means by self-support to many of our best students.

The wants of the department are many and various. The most imperative needs named in my last report have not been supplied. I renew an urgent request for an appropriation sufficient to meet the same. It is impossible to do really good work without the following additions to the present equipment:

(1.) A series of botanical models, maps and charts.

(2.) Four compound, and one dozen dissecting microscopes.

(3.) An assortment of chemical reagents, staining fluids, alcohol, poisons, etc.

(4.) A good collection of pruning-shears, budding knives, grafting implements, etc.

(5.) A stock of botanical paper for mounting Herbarium specimens.

(6.) A clock for the lecture-room.

The above wants are not simply desirable, they are indispensable. An appropriation of four-hundred dollars would meet these urgent demands, and give us a fairly well-equipped Botanical and Horticultural Laboratory.

Very respectfully yours,

WILLIAM R. LAZENBY,
Professor of Botany and Horticulture.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

W. H. Scott, *President Ohio State University:*

Sir: I have the honor to submit the following report of the Department of the University in my charge since September 18, 1884.

There are now in the Cadet battalion one hundred and forty-one members, consisting of the preparatory and freshman students, and several officers belonging to higher classes.

The sophomore class was to be under my instructions in artillery drill, but on account of recitations interfering, I was unable to get a sufficient number at any hour to man one gun. This matter is, I believe, to be submitted to the Board of Trustees.

Those members of the classes subject to military instruction who desire to be excused on account of physical disability, have now to obtain a certificate from a physician appointed by the Secretary of the Board of Trustees. This makes the number of absentees on that account somewhat less than formerly.

A few students are also excused on account of poverty, or because their duties on the farm or in the dairy interfere with military instruction. The interest displayed by the members of the battalion is very satisfactory, and with but few exceptions they seem to appreciate the advantages, physical and mental, which the instruction gives.

The old guns have been exchanged for two three-inch rifles with their limbers, caissons, etc. The latter are lighter and much better,—easier to handle.

The band instruments are in a bad state of repair, and I think it would be a very desirable thing if a sufficient amount could be appropriated to have them thoroughly mended, as a good many members of the college are desirous of forming a band. A band will do much to inspire enthusiasm in the battalion, besides doing good in other respects.

The Cadet rifles, accoutrements, etc., are in generally fair condition, with the extion of the waist-belts and cartridge-boxes, which are much worn.

The instruction thus far has been entirely practical — settings up, squad and company drill, manual of arms, etc. I have had one battalion drill, and will be able to have several more before cold weather sets in, when theoretical will be divided with practical instruction.

Very respectfully,
Your obd't serv't,
A. P. Blocksom,
1st Lt. 6th Cav'y, Professor of Military Science and Tactics.

Ohio State University, Columbus, Ohio, November 12, 1884.

DEPARTMENT OF AGRICULTURAL CHEMISTRY.

W. H. Scott, *President Ohio State University:*

Sir: The undersigned would respectfully submit the following report of the Department of Agricultural Chemistry for the fall term, 1884. Of the rooms in chemical laboratory, which have been assigned to this department, only two, those recently occupied by the officers of the experiment station, are finished. In the larger one of these temporary desks have been fitted up for my students and myself. The apparatus, reagent bottles and reagents, were kindly loaned to this department by Prof. Norton. It was found necessary to purchase a small number of salt mouth bottles, to contain the material for work, as well as a few of the most common salts. The smaller room serves as a recitation room, store room and balance room. The laboratory fee collected from the students in this department for the present term is $8.00, as the laboratory practice embraces only eight hours per week, instead of ten, the other two hours being devoted to lectures and recitations. The undersigned, therefore, recommends that the fee for this department may be fixed at $8.00 per term.

Very respectfully,

H. A. Weber.

Columbus, Ohio, October 25, 1884.

DEPARTMENT OF HISTORY AND ENGLISH LANGUAGE AND LITERATURE.

William H. Scott, *President Ohio State University:*

Dear Sir: I beg leave to present the report of the Department of History and English Language and Literature for the college year 1883–84.

The enrollment for the year was:

History.	1st term.	2d term.	3d term.
Preparatory	34	37	47
Junior	7	5	4
Senior	3	3	2

ENGLISH.			
Sophomore	24	18	18
Junior	11	10	7
Senior	8	8	8

This enumeration does not include the class in United States Constitutional History, of the charge of which you courteously relieved the crowded department. During the Spring term, Mr. E. E. Sparks taught very efficiently one division of the Preparatory Class in General History.

The department embraces work in various distinct lines, each with its own radiations, more or less extended: History, every year reaching further, and penetrating deeper in its researches; the English Language, in its rise and development, leading to the Anglo-Saxon, and through it into the realm of Comparative Philology; Rhetoric, in any adequate study of its methods, taking the student back to the dawn of polite learning, and into the sphere of logic and of oratory; English Literature, constantly justifying its claims to ampler recognition, as an agent of discipline and culture in the college curriculum. In view of this wide range of the work, of the limited appliances for its prosecution, and of the embarrassment inseparable from my position, as a stranger to the university, a fair measure of successful results was attained. I have to commend the efforts with which students strove to supply the lack of the charts, maps and books, indispensable to the satisfactory study of history and literature. The accessions, now making to the university library, must work an era in the history of the department, so immeasurably will they facilitate its work and add to its efficiency.

Very respectfully submitted.

CYNTHIA U. WELD,
Assistant Professor.

Ohio State University, November 1, 1884.

DEPARTMENT OF FRENCH AND GERMAN.

President W. H. Scott:

SIR: I have the honor to submit the annual report of the Department of French and German for the year 1883-84:

When the school year opened, the students in the several classes numbered as follows:

Sophomore French	15
Freshman French	55
Second Preparatory German	23
First Preparatory German	46

The course of study was materially the same as that pursued the year previous, and will be found explained in the report of last year.

The work of the department progressed satisfactorily.

Respectfully submitted.

ALICE K. WILLIAMS,
Instructor French and German Languages.

THE LIBRARY.

President W. H. Scott:

DEAR SIR: I have the honor to submit my annual report of the condition of the library.

During the past year the reading-room has been supplied by subscription with the following periodicals:

The Scientific American, Nature, Science, Popular Science Monthly, American Machinist, American Journal of Science, Van Nostrand's Engineering Magazine, North American Review, Princeton Review, Spectator, Nation, Journal of Chemistry, and Mind.

This selection, which represents fairly well the present state of literature, politics, education, and the more popular feature of science, is as satisfactory as any of equally narrow limits, and I recommend that it be continued, with the addition of some magazine like the *Foreign Eclectic*, which would be of service to students of French or German, and of *The Atlantic* and *The Century*. The two latter will be helpful to some and not beneath the attention of any of our students.

In addition to the periodicals already mentioned, and a considerable amount of miscellaneous matter, thoughtful friends and publishers have sent to the library, *The Ohio Farmer, Northwestern Rural, City and Country, Springfield Republic, Home Gazette, American Engineer, American Manufacturer, Protectionist, Justice, American Reformer, Legal Record, Patent Office Gazette, Watchman, Lutheran Visitor, and Christian Register.*

These papers have been duly read and appreciated.

The facilities of the library proper have been greatly increased within the year through the generous appropriation of $5,000, made in its aid by the State Legislature. Only a portion of this sum has been expended, but nearly all the remainder will be exhausted before the beginning of the winter term.

As soon as the Board of Trustees had the means to make the needed additions to the library, steps were taken to make a general change in that department. The need of a more suitable room was apparent.

The completion of the new Laboratory of Botany and Horticulture, and consequent removal of that department, left vacant its former quarters in the main building. These rooms, though somewhat remote from the ground floor, were spacious, well-lighted, and otherwise suitable for library purposes, for which they were accordingly set apart.

Through the efforts of the committee on library repairs, these apartments have been neatly and conveniently arranged for the reception of a collection of books considerably larger than we now possess.

The railing, cases, and other fittings have been procured at small expense, while the character of the work is such as to reflect credit upon Messrs. Watt and Ray, students at the University, who put in practical shape and conscientiously carried out the plans of the committee.

A few minor and inexpensive additions will make the present quarters of the library far more convenient than the former, and several times more spacious.

Upon consultation with librarians of large experience, and in accordance with the custom in some of the best libraries, it was decided to prepare a card catalogue; one set of cards contains the names of all the authors represented in the library, together with the "short title" of the work, while a second set shows the subjects treated of by the books in the collection; both sets are arranged in alphabetical order in a case specially prepared for this purpose, and, together with cross references, make, it is believed, a complete and easily intelligble catalogue. All suggestions which have in view the improvement of the catalogue by pointing out errors or otherwise amending it will be gladly received. Much thought and labor have been bestowed upon the preparation of the catalogue by Miss Lehner and Miss Fisher. It must be borne in mind that librarians do not agree in all particulars in the difficult task of making a catalogue for readers who seldom take pains to understand its plan, and who suppose that topics will necessarily occur to others under that title which is most familiar to them.

No single plan can combine all the merits which mark the different methods now used in the preparation of library catalogues.

After reserving a sum sufficient to defray all the cost of repairs, library furniture, and catalogue, the remainder of the appropriation was divided by the Trustees into two portions: Nine-twentieths, it was decided, should be expended for books of a general character, including works of reference, the other eleven-twentieths was set apart for the purchase of books more closely adapted to the wants of the various departments.

All books in the former list were to be selected by the President of the University and the Librarian, all in the latter by the several professors of the departments.

Much labor has been expended by the committee of selection and purchase to make every book of positive and immediate value to the Library. Rare and curious books have not been selected save in the few cases when they were of value for other reasons.

Thirteen hundred and fifteen volumes have been already received, the larger number of which belong to the general list, which comprises works of history, philosophy, political science, biography and literature, together with a valuable set of works of reference.

The plan of the library as reorganized embraces three parts more or less distinct.

1st. Nearly all the works of reference have been placed in a case in the reading-room, where they can be freely consulted by the students during the entire day.

Free access is thus secured to the best encyclopaedias, gazetteers, dictionaries of the principal ancient and modern languages, antiquities, political science, and literature, and to other compends of information.

2nd. All the remaining works of a general character have been placed in the library proper, where they can be consulted in library hours, or drawn for reading, after a careful record has been made of each volume taken from the shelves. The librarian felt compelled to restrict the previous unlimited access to the books, on account of the loss of books, and the inconvenience caused by retaining books at the pleasure of the person who had taken them from the Library. The present arrangement will result, it is hoped, in the greater benefit of the greater number.

3d. Books on particular sciences are in several instances kept for use in that department where they are of greatest service. This plan will yield excellent results if proper measures are taken to secure the books from loss and the due proportion is maintained between the extent of the Central Library and the departmental libraries.

The majority of the books yet to be purchased will go to the departmental libraries, whether retained in the main libraries or removed to the quarters of the various departments. If the cost of books still to come in does not vary greatly from the price per volume hitherto paid, the total addition will reach two thousand volumes. In any case the value of the Library will be very greatly increased.

Much labor must be expended upon the Library before its present resources can be made fully available, and to this end those in charge of the department are working steadily.

The chief needs of the Library at present are:

1st. A much larger selection of the best scientific and literary periodicals, which should be bound from time to time and thus made of permanent value to the University.

2nd. Sets of scientific serials, transactions of learned societies, and publications of scientific and philosophical associations are needed and will soon be indispensable for the use of professors and students in advanced work in every department of the University.

3d. We ought to preserve many volumes by rebinding them. Many valuable pamphlets and periodicals should be preserved for use by completing the series when broken and putting the numbers into plain and durable bindings.

The valuable services of the Assistant Librarian, Miss E. C. Lehner, deserve cordial recognition.

Yours, with much respect,

Samuel C. Derby,
Librarian.

Ohio State University, Nov., 1884.

FARM DEPARTMENT.

REPORT OF THE FARM COMMITTEE.

HON. T. J. GODFREY, *President:*

The amount placed in our hands, viz., $500, with which to repair and improve the farm house, and to repair the embankments along the river, we found to be insufficient to complete the work. To finish the house, required an outlay of $425.05, and the repair of the embankments cost $231.12, thus requiring an outlay from the funds of the farm, over and above the appropriation, of $154.19. We now have a comfortable house for the farm superintendent, and we are hopeful that the embankments along the river, with an additional outlay of from $100 to $150, in the way of protecting the earth-works by suitable piling, will be sufficient to keep the current of the river from crossing the farm.

As instructed by the board, we have arranged with Professor Lazenby the question of salary, as follows: He is to receive a salary of $2,250, to be paid the same as the salaries of the other professors, and he is to turn in to our secretary the $500 he receives from the agricultural experimental station, for service.

The result of labor and money expended on the farm has not made as satisfactory returns this year as was hoped for; several things have combined, unnecessary here to enumerate, to cause this.

The work and results in the horticultural department of the farm, apart from the effect of the extreme drouth of the past summer, have been very satisfactory.

We submit herewith, and make part of this report, the reports of the professors of agriculture and horticulture. We have examined the accounts of each of these departments, and find suitable vouchers for all expenditures.

Respectfully submitted.

S. H. ELLIS,
JAS. B. JAMISON,
Farm Committee.

REPORT OF FARM MANAGER.

S. H. Ellis, Esq., Chairman of Farm Committee:

DEAR SIR: Please find herewith the annual report of the farm superintendent, Mr. J. J. Janney. The report includes a statement of receipts and expenditures, also of improvements made upon the farm for the past year. In consequence of the change of farm superintendent, it has not been found practicable to submit at the present time a complete account of experiments made upon the farm during the year.

The extreme drought of the past season caused pastures to be very short, and occasioned a great falling off in the receipts from the dairy; the hay and corn crops were also light.

Your attention is specially invited to the recommendation of the superintendent in regard to an increase of barn room.

Yours, respectfully,
N. S. TOWNSHEND,
Professor of Agriculture.

Ohio State University, Columbus, November 12, 1884.

REPORT OF FARM SUPERINTENDENT.

N. S. Townshend, Professor of Agriculture:

I hand you herewith statements showing the results of the operations on the farm during the year ending November 1, 1884.

Statement A shows the amounts on hand at the commencement of the year, the amounts produced and purchased, the amounts consumed or sold, and the amounts now on hand.

Statement B shows the receipts and expenditures during the year, and statement C exhibits the dairy account for the same time. The pasturage of the cows is omitted, that each one can estimate for himself.

The stock and implements are in good condition. But two cows have been bought since my connection with the farm. There are some good Jersey calves now for sale, and some very fine Poland China and Berkshire pigs, but for each of these the professional stockmen seem to control the market.

No implements have been bought, except a truck for the binder, which seemed necessary, and a milk cooler, which will render the use of ice unnecessary during summer. Materials were purchased, and two wagon beds made at much less than they would have cost if purchased.

The only permanent improvements made during the year are the addition to the farm-house, which has been completed, and the rebuilding of the embankments that were washed away. The appropriation of five hundred dollars made for the purpose was nearly absorbed by the house, there being but $74.93 of the amount left to apply to the embankment. This leaves $231.12 expended, which ought to be refunded.

The university farm should have a better arranged and better constructed cow stable than the one now occupied, and there are springs on the college lawn that could be utilized for furnishing running water at the stable.

Thirty-four and one-half acres of wheat were reaped, producing twenty-seven and $\frac{38}{100}$ bushels per acre. The following circular was issued at the time it bears date, giving the result of the harvesting:

COLUMBUS, O., *August* 15, 1884.

The following is a statement of the wheat grown on this farm in the year 1883-4:

Varieties.	When Sown.	Size of Plot	Lbs. Sown.	When Ripe.	Product.	
					Total.	P'rAcre
1. Martin's Amber	Sept. 25th.	1.08 acre.	120	July 1st.	27½	25.46
2. York White Chaff	" "	.85 "	85	" "	31	36.47
3. M'Ghee's Red	" "	.92 "	75	June 28th.	20	21.74
4. Grecian	" "	1. "	79	July 1st.	31	31.
5. Travis	" "	.82 "	75	" 2d.	27½	33.53
6. Zimmerman	" "	92 "	74	" 3d.	22½	24.45
7. Finley	Sept. 26th.	2.04 "	195	June 27th.	59½	29.16
8. Bennett	" "	.53 "	54	" 28th.	15	28.30
9. Sandomirka	" "	2.22 "	....	" "	39½	17.8
10. Rocky Mountain	" "	1.07 "	93	" 29th.	29	17.79
11. Egyptian	" "	1.01 "	98	" "	29	28.71
12. Lancaster	" "	.92 "	90	July 2d.	25½	27.71
13. Tuscan Island	" "	.34 "	30	" 1st.	9	26.17
14. White Blue Stem	" "	.92 "	100	June 30th.	26½	28.80
15. Frick's	Oct. 3d.	.31 "	30	July 2d.	7½	24.18
16. Wick's Amber	" "	.32 "	30	" 3d.	7½	23.42
17. Velvet Chaff	" "	16.80 "	1½ bu. p. a.	June 28th.	487½	29.
18. Cherry White	Oct. 4th.	.77 "	60	July 12th.	12	15.58
19. Square Head	" "	.34 "	30	" "	7	20.60
20. Fenton	" "	.34 "	30	" "	5	14.71
21. Valley	" "	.34 "	30	" "	12½	36.76
22. Scotch White	" "	.35 "	30	" "	} 11½	} 6.09
23. Scotch Brown	" "	.35 "	30	" "		

Of these varieties, numbers 1 to 16, inclusive, were sown on upland, sandy loam, and, unfortunately, on Velvet Chaff stubble, hence they were all mixed with about five per cent. of that variety, rendering them unfit for seed.

Numbers 18, 19, 20 and 21 were injured by flood, and numbers 18, 19, 20, 22 and 23 are Scotch varieties that had not ripened perfectly on the 10th of July, when they were cut.

The average per acre, on 84½ acres, was 27.28 bushels, and, omitting the varieties that may be considered almost total failures, it was 28.27 bushels, machine measure.

We have a supply of Velvet Chaff of good quality for seed, and which is one of the very best varieties, at one dollar and a half per bushel, with twenty-five cents each for sacks, delivered on the railroad at this city.

We have a small amount of Sandomirka, which yielded on upland, where not flooded, thirty bushels per acre, and is a variety of superior quality.

From answers to a circular sent to parties to whom seed-wheat had been sold, the following abstract is made:

Variety.	Quality of Straw.	Quality of Grain.	Hardiness.	Injury by Fly.
1, Velvet Chaff................	Stiff.	Slightly shrunken.	Good.	None.
2. " "	Good.	Good.	Average.	"
3. " "	"	Excellent.	Good.	Some extent.
4. " "	"	Good.	"	Inj'ed in sandy land.
5. " "	"	"	"	None.
6. " "	Excellent.	Excellent.	Very good.	"
7. " "	Strong.	Extra good.	Good.	"
8. " "	Good.	Good.	"	"
9. " "	"	Excellent.	Very good.	"
10. " "	"	Good.	Good.	"
11. " "	Fair.	"	Very good.	"
12. " "	Good.	"	Fair,	"
13. " "	"	....	....	Slightly.
14. " "	....	Good.	Poor.	None.
15. " "	Good.	No. 1.	Good.	"
16. " "	Medium.	....	"	"
17, " "	Good.	Inj'ed by late frost.	"	"
18. Red Bearded	Stiff.	Very good.	Medium.	"

Thirty acres of corn were planted, producing fifteen hundred bushels, which for a season of such great drought, was a fair crop. Two kinds were planted, the Leaming and what is known locally as the Miller. The latter, in this case, proved to be the better of the two, having a better grain and weighing two to three bushels per load more than the former.

One and sixty-seven hundredths acres was planted with sugar beets, which produced thirty-five tons. I attribute the good success for both corn and beets, during such a drouth, to the thorough cultivation given them.

Five hundred and fifty loads of manure have been spread on the farm during the season, and there is a large amount yet to haul.

J. J. Janney,
Farm Manager.

STATEMENT A.

Items.	On hand Nov. 1, 1883.		Bought.		Produced.		Consumed.		Sold.		On hand Nov. 1, 1884,	
	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.
Horses	8	$1,110 00									8	$1,110 00
Hogs and pigs	27	325 00			44	$208 00			35	$370 00	49	221 25
Cattle	36	2,880 00	2	$110 00	23	600 00			16	716 98	45	3,915 00
Implements		3,097 20		20 00								3,117 20
Corn	1,961 bus.	980 50			1,500 bus.	750 00	1,900 bus.	$990 00	143 bus.	96 14	1,400 bus.	700 00
Wheat	65 "	65 00	27 bus.	40 50	1,098 "	878 40			1,009 "	745 86	89 "	78 40
Oats					190 "	76 00					190 "	76 00
Beets	3,000 bus.	300 00			35 tons.	117 00	3,000 bus.	300 00			35 tons.	117 00
Hay	64 9-10 tons.	324 50			25 "	175 00	70 tons.	490 00			20 "	140 00
Fodder	850 shks.	170 00			618 shks.	183 60	868 shks.	178 60			600 shks.	120 00
Straw	73½ tons.	294 00			40 tons.	160 00	78½ tons.	314 00			35 tons.	140 00
Potatoes	66 bus.	26 40			64 bus.	32 67	130 bus.	59 07				
Milk						3,094 34				3,094 34		
Labor								2,036 76				
Totals		$9,572 60		$170 50		$6,225 01		$3,273 43		$5,022 82		$9,734 85

STATEMENT B.

RECEIPTS.

Cash on hand November 1, 1883	$4 56
Received from all sources during the year	5,539.56
	$5,544.12

EXPENDITURES.

Paid for labor and salary of manager	$2,036 76	
" repairs and incidental expenses	1,208 46	
" dairy	1,879 06	
" embankment	306 05	
Balance on hand	113 79	
		$5,544 12

STATEMENT C.

DAIRY, *Cr.*

By milk sold	$3,094 84
cows and calves sold	716 98
calves on hand	600 00
	$4,411 82

Dr.

To milking, driving wagon and incidental expense	$1,879 06	
cows purchased	110 00	
		1,989 06
Balance		$2,422 26

HORTICULTURE AND BOTANY.

HON. S. H. ELLIS, *Chairman Farm Committee Ohio State University:*

DEAR SIR: I have the honor to present my third annual report of the Department of Practical Horticulture for the year ending November 1, 1884.

DIVISIONS OF THE DEPARTMENT.

As at present constituted, this department presents at least five distinct means of illustration. These are as follows:

(1) *A fruit garden;* (2) *A vegetable garden;* (3) *Nursery and forest tree plantations;* (4) *A botanic garden and arboretum;* (5) *Experiment grounds;* (6) *A green-house and flower garden.*

The importance and necessity of these different sub-divisions have been set forth in a former report. In order to teach Horticulture successfully, it must be treated as an art, based on science. Observation and practice are required to supplement and emphasize the instruction of the class-room. The progress made during the past year, and the present condition of the different branches of the department, will be briefly treated in this report.

GENERAL STATEMENT.

The prospects of the department, as a whole, at the beginning of the year were extremely flattering. The small fruit plantations had been considerably extended and the vegetable garden put into good condition. The Spring crops were planted in good season and made a fine start. As soon as new growth had fairly commenced, it became evident that the raspberry plantations had suffered more severely from the cold winter than had been supposed. In consequence of this the yield was greatly reduced. During the latter part of May a fierce and long-protracted drouth commenced. This lasted until about October 1st. It completely ruined some of the vegetable crops and greatly injured others. The severity of this drouth will be understood when it is known that from the 28th of May until the 24th of September only 4¼ inches of rain fell. This gave but little more than one inch of rainfall per month during the season of growth, when moisture is most needed.

Owing to these causes, the income of the department has been only about one-half of what might have been reasonably expected. Although money-making is not the design of the department, efforts have been made at all times to carry on the work in a business-like manner. All operations are performed as economically as possible. The season was so unfavorable, that little work has been done aside from that absolutely necessary in the care of the crops. Much can be done, however, when the income will warrant, that will add greatly to the appearance of the gardens, and not detract from their usefulness.

Nearly all the prominent varieties of garden vegetables have been tested in a small way; the greatest area being devoted to those which required the least outlay of labor and gave the greatest net returns.

Many crops are profitably grown by gardeners having large families, that could not be cultivated by the department except at a loss. Marketing, where small quantities of a large list of varieties are grown, is also expensive, and it has been found best to sell the greater part of the products to dealers. A large portion of the fruit, however, has been sold at retail. This is done because it has been found possible to sell at sufficient increase in price to more than pay for the additional labor involved. Consumers are quite willing to give a fair price for good fruit, carefully picked and neatly packed. By striving to excel in this direction a reputation has been gained, which is quite complimentary. This reputation enables us to command a higher price for our fruit, and is a practical illustration of an important principle. "University berries" are no longer in competition with those offered by hucksters, because they are of a superior quality. This is not only gratifying to those in charge of the department, but it is cause of satisfaction to consumers, and a wholesome lesson to growers and dealers.

A full account of the experimental work done in the gardens will be found in the annual report of the Experiment Station.

LABOR.

Most of the work has been done by regularly employed laborers. Students have been given work as far as possible. It has been found impracticable, however, to carry on the work systematically and still find employment for students at any hour they may choose to demand it. Those who could work regularly a few hours each day, have usually found employment. As a general thing, students are not familiar with garden operations, and cannot be employed with satisfaction or profit until they have acquired some degree of skill. It seems no more than just to discriminate according to merit and pay in proportion, but such a plan has serious objections. The only practicable course, where the amount of work is limited, is to employ those only who are most faithful and skillful.

THE FRUIT GARDEN.

The soil of the fruit garden does not seem to be well adapted to fruit-plants in general. None of the fruit-trees, except the cherry and dwarf pear, have made a satisfactory growth, and even these show but little evidence of fruitfulness.

The apple trees especially have been carefully watched during the past two or three seasons in order to discover their needs. The soil is well drained and does not lack fertility, and yet the trees are making a very unsatisfactory growth. If there is any available ground upon the college farm, better suited for such a purpose, I should recommend the establishment of a new apple orchard.

The pear trees, especially the dwarfs, have made a much better growth, and are quite free from blight or other diseases. A portion of the pear orchard has been seeded with grass, as the trees are growing too thriftily. The remaining portion, also the apple, cherry, and quince orchards are still cultivated. The vacancies have been filled with new and carefully selected varieties.

The quince bushes were all killed to the ground by the severe cold of last winter. The dead tops were removed last spring, and young shoots started from the roots. These made a very vigorous growth despite the dry weather. Whether they will survive the winter or not remains to be seen.

The grape vines also suffered from the severe cold of the past year. They made a good growth, however, and are now in an excellent condition. The vines will be pruned and laid down for the winter.

Several new varieties have been added to the list reported last year. Among these are the Empire State, Bruno, Antionette, Excelsior, Early Victor, Golden Pochlington and Jefferson. This makes altogether something over 60 of our best varieties.

Strawberries.—The plantations, both new and old, occupy about one and three-quarter acres. About one-half of these were planted in the spring of 1873, one-half of the remainder in 1884, and the balance in 1882.

The yield the past season was not large, being cut short by untimely spring frosts and excessive drouth.

The fruit, though lacking in quantity, was of good quality and sold at fair prices, giving better returns than any other crop. The following new varieties have been added to the list: Ford's Seedling, Park Beauty, Legal Tender, Howell's Late Prolific, Henderson, Foote's Seedling, Grand Duke, Crawford's No. 93, Black Giant, Arnold's Pride, Jewell, Parry, Wonderful, Daisy Miller, Indiana, Vineland, Emerald, Golden Defiance, Belle Bordelaise, Royal Hautbois, Montreuil. Nos. 3, 5, 8, 9, 27, and 45, from Benjamin Hathaway, beside a few other unnamed seedlings of promise. This makes the collection a very complete one. Careful and numerous notes on varieties have been taken, which will form the basis for a paper to be read before the next annual meeting of the State Horticultural Society. Other tests and experiments have been made, the results of which will be published in our agricultural journals. Many varieties of the strawberry cannot be grown for market with profit. For this reason new and untried kinds are given only a small space, while the large beds are planted with only a few leading varieties. Quite a large plat was planted last spring, with the intention of keeping the runners all cut off, according to the hill system. This was to be a model bed. The unfavorable season so interfered with the plan that it could not be carried out. If arrangements can be made for irrigating our strawberry plantations, fruit of the finest quality can be grown. Without being able to control the supply of moisture this is impossible.

Raspberries.—The area devoted to this fruit has been extended, making now about three acres. This is about equally divided between the red and black varieties. Contrary to expectations the blackcaps suffered more severely from the cold winter than the red varieties. The latter bore about three-fourths of an average crop; the former less than one-fourth.

The following new varieties have been planted in a small way, and the list now includes all the best old, and the most promising of the new sorts:

Lost Rubies, Shaffer's Colossal, Superb, Florence, Hopkins, Marlboro, Montclair, Michigan, Early Red, Baumforth's Seedling. The following are the principal varieties of blackberry on trial: Early Harvest, Brunton's Early, Staymen's Early Wallace, Taylor, Storre's Hardy, Wilson's Junior, Snyder and Early Cluster.

Gooseberries and Currants.—These yielded moderately well and brought fair returns, although the crop was not a full one. Good cultivation has been given, and the prospect for a good yield next year is flattering.

Quite a number of new varieties have been planted for trial.

On the whole, the fruit garden is in a fairly good condition, and affords an excellent opportunity for study and comparison.

VEGETABLE GARDEN.

Operations were conducted much the same as last year. All of the crops were greatly injured by the severe drouth. Some were entirely destroyed. In all about six acres were devoted to vegetables.

Potatoes.—About one-half of the area is devoted to this crop. When this is harvested the same ground is planted with cabbage, celery, or some late crop. This season the drouth seriously interfered with the successful working of this plan. The method requires a very rich soil as well as an abundance of moisture. Fertilizers have been liberally applied, so that with an average rainfall we ought to succeed much better in the future. The yield of potatoes was much below an average crop, being about 100 bushels per acre.

Tomatoes.—This was the only crop not seriously affected by the dry weather. By careful selection of seed the quality of this crop has been much improved. The greater part of the crop was saved for seed, which is readily purchased by our leading seedsmen. All the leading varieties have been on trial. The one most largely grown is the Acme.

Cabbage.—The early varieties were quite good, but the late sorts did not have sufficient time to mature after the fall rains came.

We have had a large number of varieties on trial, and our notes upon their comparative merits will be of great public value. About one acre was devoted to this crop.

Onions.—These gave promise early in the season of an excellent yield. But owing to the drouth few of the bulbs attained marketable size. Quite a number of varieties were tested and a careful comparison made as to the value of seeds from different growers. The amount of land occupied with this crop was one-half acre.

About one-half an acre was devoted to parsnips, carrots, salsify and early beets, all of which did well considering the season. The cost of growing these crops is quite small, but the demand is limited, hence the profits, when simply grown as market vegetables, is not large. The feeding value of some of these roots can scarcely be overestimated.

We have fed our work-team liberally with carrots the past season, and find the crop to be one of great value for feeding horses. During the winter and early spring one bushel of carrots and one bushel of corn fed in alternate meals, were of equal value to two bushels of corn alone.

Horses, like human beings, require a variety of food, and thrive best upon a ration that involves a change of diet. Succulent food, in part, will always prove beneficial, and this can be easily and economically afforded by carrots.

OBJECT OF THE FRUIT AND VEGETABLE GARDEN.

Education is the primary object in the management of the gardens. They are regarded as an invaluable means of illustration for such students as desire to make a speciality of Horticulture. It is the aim to have all the best varieties and to exhibit the best methods of cultivation and training. We firmly believe that a useful practical knowledge concerning varieties of fruits and vegetables, methods of propagation, cultivation, harvesting, marketing, winter protection, etc., can be gained in no other way.

NURSERY AND FOREST TREE PLANTATIONS.

This important branch of our work has not been enlarged and extended as rapidly as I could wish. The reason for this has been a lack of means. No adjunct to the department is more essential.

To satisfactorily teach the operations of budding, grafting, pruning and training, requires a good supply of nursery stock. This stock is also needed to replenish our orchards and to supply the arboretum.

We have a small collection of thrifty young fruit, forest and ornamental trees. We need more, and the stock will be increased at the very earliest opportunity. Despite the drouth our forest trees of two and three years of age made generally a good growth. Our seedlings did poorly.

BOTANIC GARDEN AND ARBORETUM.

A portion of the University campus lying just south and west of Horticultural Hall has been set apart for a Botanic Garden.

In this area it is intended to have specimens of nearly all our native perennial herbs and undershrubs. The species of each family, as far as possible, are to be grouped together. It will be a matter requiring no little skill and painstaking labor to find a place of suitable soil, elevation, exposure, light, shade, dryness and moisture, to meet the requirements of all the plants that we wish to have here represented. A thorough examination and careful study of the ground shows that such a selection can be made for a large number of species, and the work will be pushed forward just as fast and as far as our time and means will permit.

The whole campus is regarded as an arboretum, and already contains a fair collection of our hardy trees and shrubs. Additions should be made from time to time until there is to be found somewhere upon the University grounds a few species of every kind of tree and shrub that will grow in our climate. Through the liberality of the Columbus Horticultural Society a good beginning of what is intended to be a complete collection of the native trees of Ohio has been made.

This collection is to be kept distinct and is to occupy that portion of the campus lying south-east of Horticultural Hall, and immediately south of the road leading thereto.

It is hoped that means will be provided for the extension of this collection, and also for adding largely to the general arboretum the coming spring. There is nothing connected with my department that is likely to prove of more public interest, considering the means necessary to expend, than the establishment of a botanic garden and the continued enlargement and improvement of the arboretum.

THE GREEN-HOUSE AND FLOWER-GARDEN.

Our new green-house is a grand success. The location, general plan of structure, methods of heating, and ventilation are about all that could be desired. It is built in the most careful manner and of the best possible materials.

The staging, costing over $200, was put in by the Experiment Station. Not a dollar, except a few trifling charges for shipment, has been paid for plants. Our collection is not as complete as we hope to make it, yet, thanks to the generosity of friends, we have a much larger and better stock than we dared to expect. The plants are of signal service for purposes of study and illustration, and the house is proving useful for performing various experiments.

Our collection comprises several thousand individual plants, representing at least five hundred distinct varieties. The greater portion are rare exotics, such as are cultivated mainly for ornament. We are also getting specimen plants of economic value, those which afford food, clothing, and which are useful in medicine, and in various other ways.

Our flower-beds, though few in number, were well kept, and added much to the appearance of the grounds. We hope to do much more in the direction of out-door floriculture the coming season.

THE LAWN.

This was mowed twice in the early part of the season, and has been kept in fairly good order. Its appearance has been much improved by the removal of several old and partially dead trees. Although some changes for the better are being made from year to year, the actual condition of the lawn is far from satisfactory to those in charge. Excepting a small portion, immediately in front of the main building, the surface is very rough and uneven. Some portions need underdraining. If this was done, and the whole surface properly graded and top-dressed, with well decomposed stable manure, we might have an almost perfect lawn. Without these improvements, it is impossible to keep it in anything like decent order. I again urge the importance, the necessity, of having a good one-horse lawn mower. I also renew my recommendation for some rustic seats, to be placed at suitable points. A few arbors, covered with some of our finest hardy-climbing vines, and some bird-houses of neat design, would add much to the attractiveness of our campus.

The proper care of the University grounds demands much time in personal supervision, and considerable money to pay for labor. But it is time and money well spent. Few things are more important than to teach the art of making home pleasant. Our grounds should not only be a means of education for our students, but a good example of a tastefully laid out and well kept place for the benefit of the general public.

SUMMARY.

The following is a brief summary of the means of illustration and instruction in this department:

(1.) A museum, containing specimens of nearly every plant found in the State, and fairly representing the flora of the United States. A large collection of grasses, seeds of weeds, and various economic products of the vegetable kingdom.

(2.) An orchard, containing numerous well selected varieties of the apple, pear, cherry, plum and quince.

(3.) A small vineyard, containing 60 varieties of the grape.

(4.) A garden of small fruits, containing all the best varieties of the strawberry, raspberry, blackberry, currant and gooseberry.

(5.) A vegetable garden, with hot-beds, cold-frames, experimental plots, conveniences for irrigation, etc.

(6.) Nursery and forest-tree plantations, with practice rows for budding, grafting, pruning and training.

(7.) Ornamental grounds, planted with a large variety of evergreen and deciduous trees and shrubs.

(8.) A well built and conveniently arranged green-house, furnished with a good collection of native and exotic plants.

EXPERIMENT STATION.

The head-quarters of the station have been moved from the Chemical Building to Horticultural Hall. The work is being prosecuted as heretofore. At present the Board of Control and working corps are as follows:

Board of Control:	*Officers:*
GOV. GEORGE HOADLY, *Ex-officio.*	WILLIAM R. LAZENBY, *Director.*
N. OHMER, *President.*	H. A. WEBER, *Chemist.*
W. N. COWDEN, *Secretary.*	WM. B. ALWOOD, *Sup't Field Experiments.*
EMMETT MIX, *Treasurer.*	W. S. DEVOL, *Botanist.*
WILLIAM R. LAZENBY, *Ex-officio.*	W. J. GREEN, *Horticulturist.*

The following rules and regulations adopted by the Board of Control will give an idea of the duties of each officer:

RULES OF THE OHIO AGRICULTURAL EXPERIMENT STATION.

All laborers shall, upon the advice of the director, be engaged by the officers of the respective departments in which they are employed. Every employe is expected to be diligent, and to do good, honest, faithful work precisely as directed by those in charge.

Any one who does not know enough to do as he is told, or requires watching, will be promptly discharged.

The regular working hours shall be from 7 A. M. to 12 M., and from 1 P. M. to 6 P. M. Teams must be fed and properly cared for outside of these hours.

If necessary, for experimental purposes, work may be required outside of the regular hours.

All causes of complaint shall be referred at once to the director.

No money whatever shall be expended, or any debt contracted by any officer of the Station, without the advice and consent of the director.

Copies of all letters, postal cards, or any written communication of an official character, must be made before such are sent from the Station, and all communications of importance should have the signature of the director.

While each officer is expected to devise and plan some original investigations in his particular department, no new work shall be entered upon without the consent of the director.

Each officer is expected to exercise proper courtesy to all visitors, and to do whatever work may be assigned him.

For the purpose of furthering the interests of the Station by judicious co-operation, there shall be a meeting of all the officers every Monday afternoon at half-past four o'clock.

DUTIES OF OFFICERS.

The *Director* shall have general oversight of all the Station work, shall attend to correspondence, referring letters of inquiry to the officer of the appropriate departments. He shall prepare the notes of observations, tests and experiments for publication, and present a statement of the progress of the work of the Station at each regular meeting of the Board of Control.

The *Superintendent of Field Experiments* shall see that the laborers are assigned to their proper work each morning, and that they are prompt and faithful. He shall have entire charge of all the Station work outside of that hereafter assigned to the other officers. He shall make full and careful observations of all experiments, taking the proper notes on each, recording all facts of interest pertaining thereto, especially such as relate to the condition of the soil, temperature, etc., and their influence upon the crops being tested.

He shall keep the cash account-books of the Station, pay all bills and accounts, preparing an itemized monthly statement of the same, to be accompanied with vouchers.

He shall do all the important scientific work, such as taking weights, measurements, etc., with his own hands, or under immediate personal supervision.

He shall be responsible for the care of teams, wagons, and all tools and implements belonging to the Station, none of which are to be used without his permission.

He shall be the meteorological observer, and keep the Station office rooms in good order.

The Superintendent of Field Experiments is expected to give his whole time to the Station, and every Monday morning shall submit his notes, and a carefully prepared summary of the previous week's work to the director.

The *Horticulturist* shall have charge of all experimental work relating to fruit and garden vegetables; also such special work as may be assigned him by the director. He is expected to take full notes of all work done in the gardens, to make observations concerning time of planting, germination, appearance of bloom, etc., of all varieties tested; to note the appearance, injury and best remedies for insect enemies, weeds, etc., and to employ himself in carrying out the aims and objects of the Station, as far as they relate to Horticulture. He shall report to the director every Monday morning, making a brief summary of the work accomplished, and leaving his notes for examination.

The *Botanist* shall have charge of all tests of seed, and shall name and describe such plants as are sent to the Station for identification. He shall also have complete charge of all museum specimens, and shall collect and preserve such samples and materials as may be useful in this way. He shall also have charge of the mailing list, and do such clerical and other work as may be assigned him from time to time.

The *Chemist* shall conduct such analytical investigations as may be laid out for him by the director.

The value of the Station, as a means of education and training for students, can hardly be overestimated. It also furnishes a large number of students with more or less employment, doing more in this direction than any regular department of the university.

THE NEEDS OF THE DEPARTMENT.

These are numerous and imperative. One of the most urgent is a dwelling-house for the superintendent or foreman of the gardens, and one for the florist. Without these it is next to impossible to procure and retain the services of such men as are needed. We need a low, cheap, propagating house. This is required as an adjunct to the green-house, and can be built at a comparatively slight expense. Nothing is more essential to the success of the department than a good propagating house.

I repeat the following urgent needs, mentioned in my report last year:

A small building for use as a stable and tool-room for the Horticultural department. This building should contain a small office, a room for threshing and cleaning small quantities of seed, for the storage of fruit-boxes, crates, etc. It should also have a frost-proof root cellar. Such a structure should be conveniently located, and could be built at a very moderate cost.

Another want is a complete assortment of pruning, grafting and budding implements.

OUTSIDE WORK.

The calls to attend horticultural meetings, farmers' institutes, grange pic-nics' county fairs, etc., have been much more numerous and urgent the past year than heretofore.

I am always glad to attend and take part in such meetings whenever I can do so without neglecting the regular work of instruction at the university. The vacation periods are largely occupied in this way.

During the summer I attended the annual meeting of Teachers of Agriculture and Horticulture at Cornell University, and was re-elected Secretary of the Association. I also attended the meeting of the Society for the Promotion of Agricultural Science, and that of the Association for the Advancement of Science, held at Philadelphia.

I presented a paper before the Biological section of the latter on "The Influence of Cross Fertilization on the Development of the Strawberry." I also read another paper before the botanical sub-section on "The Prolificacy of Weedy Plants, and their Distribution in the State of Ohio."

I here identified many plants and insects, and have had an extensive and varied correspondence on various agricultural and horticultural topics. Some of the questions and answers, being of general public interest, have been published in the agricultural journals.

ACKNOWLEDGMENTS.

I desire to again extend my thanks to the many friends of the university who have aided the department by donations of plants, seeds, museum specimens, etc. Special mention must be given of the generous donation of plants made by Prof. A. M. Prentiss, of Cornell University, and Mrs. R. B. Adams, Mrs. F. C. Sessions, and Mrs. Dr. Carter, of Columbus. Every gift of this character, no matter how slight, has been fully appreciated, and has added something to the usefulness and efficiency of the department.

I cheerfully acknowledge my appreciation of the services of Mr. W. J. Green, and Mr. C. A. Roth. The former has had entire charge of the gardens, and has satisfactorily managed the work entrusted to him. The latter has charge of the green-hourse and flower garden. He has labored under many disadvantages, but has taken hold of his work in earnest, and is proving very skillful and efficient in his position.

I cannot but feel grateful for the kind assistance received from all connected with the department. It is no easy matter to grasp the details of all the various branches of our work. Faithful assistance and cordial co-operation have simplified this task. I feel confident that we shall be able in the near future to make the department a greater credit to the university and of greater value to the citizens of the state.

I append to this report a synopsis of my course of lectures on Floriculture and Landscape Gardening, also a statement of the aggregated receipts and expenditures of the department for the year ending November 12, 1884.

Respectfully submitted.

WILLIAM R. LAZENBY,
Professor of Horticulture and Botany.

SYNOPSIS OF A COURSE OF LECTURES ON PRACTICAL FLORICULTURE AND LANDSCAPE GARDENING.

[Delivered at the Ohio State University, Spring Term, 1884.]

BY WILLIAM R. LAZENBY,

Professor of Botany and Horticulture.

Lecture I.—Window Gardening—Its Pleasures—Refining Influences. Location of Window—Size—Shape. Flower-pots; Jardinieres; Boxes; Plant-stands. Soil: Formulæ for Potting-soils; Rules for Potting; Fertilizers.

Lecture II.—General Management of Winter Gardens: Watering House-Plants—Time—Method. Cleanliness; Insect Enemies—Red Spider—Aphis or "Green Fly"—Scale Insect—Thrips—Mites—Angle-worms, etc.,—How to destroy them. Special Care in Spring—Summer—Autumn—Winter.

Lecture III. — Hanging Baskets — Use — Construction—Management. List of Suitable Plants—Arrangement. Climbing Vines—The Ivy—Passion Flower—Cobæa—Smilax—Morning Glory—Maurandia, etc. Vines for the Balcony—History—General Management.

Lecture IV.—Flowering Bulbs—Structure—Classification—General Rules of Culture. Bulb Cases. Growth in Sand—In Water—In Moss; Premature Flowering; The Hyacinth—Methods of In-door Culture—Calla; Cyclamen; Tulip; Amaryllis; Agapanthus; Tuberose; Lily. Stove Bulbs.

Lecture V.—Ferneries—Wardian Cases—History—Principles of Structure—Drainage—Ventilation—Location—Management—Suitable Plants—Lists of Ferns. The Waltonian Case; The Aquarium and Water Plants.

Lecture VI.—Miscellaneous Plants: Fuchsia; Heliotrope; Begonia; Primrose; Azalia; Abutilon; Eupatorium; Oleander; History—Propagation; General Management — Varieties. Flowering Plants and Health. Conservatories attached to Dwellings. Balcony and House-Top Gardens.

Lecture VII.—Out-Door Flower Garden—Its Uses—Extent—Aspect or Exposure; Preparatory Tillage; Implements; Fertilizers; Walks and Drives—Construction—Management. Lawns—Preparation—Seeding—General Treatment.

Lecture VIII.—Laying out Flower Beds: Different Styles of Planting—Promiscuous—Massing—Ribbon—Carpet; Plants Suitable for Each. Designs for Small Village or City Lots. Simple Flower Beds for Country Homes.

Lecture IX.—Propagation of Flowering Plants—By Seeds—By Cuttings. Selection of Seed; How to sow and Plant; What Varieties come True. Propagation of

Bulbous Plants. Management of Cuttings; Useful Method of Propagating; "Saucer System".

Lecture X.—Classification of Flowering Plants: Annuals—Hardy—Half Hardy—Tender; General Rules of Culture; History of Most Desirable Varieties; List for Amateur Gardeners; "Novelties;" Saving Seed.

Lecture XI.—Biennials: Hardy Herbaceous Perennials—Their Treatment—History of Most Important Varieties—List for Amateurs. Old Fashioned Flowers—Immortelles, etc. Perennial Ornamental Grasses. Winter Protection for Perennials.

Lecture XII.—Bedding Plants—Geraniums—Pelargoniums—Verbenas—Feverfews — Chrysanthemums — Pansies, etc. History — Propagation—Management—Varieties. Winter Preservation.

Lecture XIII.—Ornamental Foliage Plants—Coleus—Achyranthus—Centaureas—Caladiums—Cannas, etc. Tri-colored Geraniums. Nature's Law of Colors.

Lecture XIV.—Bulbous Plants: Spring Flowering Bulbs—Crocuses—Hyacinths—Tulips—Daffodils—Lily of the Valley, etc. Summer Flowering Bulbs—Japan Lilies, Gladiolus—Dahlias, etc. History—General Rules of Culture—Varieties.

Lecture XV.—The Rose—History—Botanical Position; Garden Classification—Tea—Noisette—Bourbon—Bengal; Propagation; Soil; Fertilizers; Pruning; Protection; Uses; Perfumes; Medical Properties.

Lecture XVI.—Ornamental Shrubs: Climbers; Trees; Their Place in the Flower Garden; Hardy Evergreen Shrubs; Weeping Deciduous Trees; Hedges; Trellises and Supports for Ornamental Vines. Vases—Rock Work—Statuary in the Garden. Plants for Shaded Positions.

Lecture XVII.—Floral Decorations: Construction of Bouquets—Baskets, etc. Floral Designs for the Parlor—Dining Table—Assembly Room; Foreign Flower Fashions; Natural Order of Flowers; How and When to Cut Flowers; How to Use and preserve them.

Lecture XVIII.—Commercial Flower Gardening: Extent of Business; The Florist's Calling; How to Become a Florist; Requisites for Success; Difficulties; Necessary Capital; Profits.

Lecture XIX.—Green-house Structures—Necessity—Use—Construction—Modes of Heating; Hot-beds; Cold Frames; Winter Work in the Green-House; Arrangements for Watering—Ventilation; Management of Workmen.

Lecture XX.—Packing Plants and Flowers for Shipping: Care in Filling Orders; Labels; Plants by Mail; Growing Flower Seeds; Journal of Daily Operations; Advertising; Summing up.

Lecture XXI.—Landscape Gardening: Principles of the Art; Different Styles; Nature, the Model; Individual Taste; Utility; Congruity; What to Attain; What to Avoid.

Lecture XXII.—Possibilities of the Art: Beauties and Defects of the Ancient Style; Advantages of the Modern; The Principles of Unity, Harmony and Variety; Difference between Picturesque and Beautiful.

Lecture XXIII.—Groves and Groups of Trees: Effects Produced by Similar Shapes; General Classification of Trees as to Form; Hints for Arrangement and Grouping; Single Trees; Evergreens.

Lecture XXIV.—Treatment of Ground: How to Heighten the Expression of Irregular Surfaces; Terraces; Treatment of Flat or Level Ground; Alterations of the Surface; Laying out Roads and Walks.

Lecture XXV.—Water in the Landscape: Study of Natural Lakes, Ponds, Brooks, and Rivulets; How to Form Artificial Bodies of Water; Planting the Margin; Construction of Fountains; Cascades and Waterfalls.

Lecture XXVI.—Rural Architecture: Study of Leading Principles; Choice of Situation; Harmony of Buildings with Scenery; Different Styles—Grecian—Italian—Swiss—Gothic, etc.

Lecture XXVII.—Embellishments: Judicious Introduction of Architectural Decorations; Conservatory—Green-House—Summer Houses—Pavilions—Arbors—Open and Covered Seats—Rustic Bridges, etc.

Lecture XXVIII.—Designs for Ornamental Grounds: Plans for City or Village Lots; For Suburban Residences; For Country Homes. Formation of New Places; Common Errors.

Lecture XXIX.—Progress of Landscape Gardening in the United States: Special Examples. Description of Public Parks, Cemeteries, and Private Country Places; Management of Large Lawns.

Lecture XXX.—The University Grounds: Opportunities for Landscape Effect; How Best Improved; How to Combine Utility with Beauty; Working Plans.

RECEIPTS.

Cash balance on hand at beginning of year	$150 49	
Cash received for produce sold	730 76	
		$881 25

EXPENDITURES.

Salary of Superintendent	$175 00	
Labor of students and foreman	556 31	
Tools, plants, seeds, repairs, etc	135 24	
		$866 55
Balance on hand		$14 70
Estimated value of unsold marketable produce on hand		100 00

WILLIAM R. LAZENBY.

TREASURER'S REPORT.

COLUMBUS, OHIO, *November* 15, 1884.

HON. T. J. GODFREY, *President of the Board of Trustees of the Ohio State University:*

SIR: In submitting the fourteenth annual report, which it has been my duty to present, I would say that I have preserved the customary order as being best for the purpose of stating the facts, and for comparison with reports of former years, and have therefore prepared the following statements:

I. A general cash statement, showing receipts, expenditures and balances.

II. The cash transactions relating to the sale of the Virginia military lands, ceded to the university, from 1871 to date.

III. A brief statement of the endowment fund, held by the state and pledged to the support and maintenance of the university.

IV. A detailed statement of the cash received, from whatever source, into my hands during the current fiscal year.

V. A detailed statement of the disbursements for the same period, to which is appended a list of officers and employes, and the salaries of each, and a statement of the minor appropriations made by the board of trustees.

I can only repeat the regrets that I have heretofore expressed, that section 8446 of the revised statutes has not been so amended by the general assembly as to permit of a statement of the endowment fund, that would be in conformity with cash statements, and avoid the necessity of annually explaining the apparent discrepancy.

Very respectfully submitted.

HENRY S. BABBITT, *Treasurer.*

STATEMENT I.

A General Statement of the Cash Accounts for the Fiscal Year ending November 15, 1884.

Henry S. Babbitt, *Treasurer, in account with the Ohio State University:*

Dr.

Nov. 16, 1883.	To balance of cash on hand			$3,040 49
	To cash from various sources, as follows, viz.:			
	From the state treasury on account of the income of the endowment fund, being balance of interest accrued prior to July 1, 1883	$3,000 00		
	Interest accrued from July 1, 1883, to January 1, 1884	16,135 34		
	Interest accrued from January 1, 1884, to July 1, 1884	16,135 34		
	On account of interest accrued since July 1, 1884	5,000 00		
	Total interest received		$40,270 68	
	From the state treasury, amount appropriated toward paying the expenses of the board of trustees	$450 00		
	From students' term bills for winter term, 1883–4	1,759 50		
	Spring term, 1884	1,564 00		
	Fall term, 1884	1,815 00		
			$5,138 50	
	From proceeds of notes received for sale of Virginia military lands and interest accrued thereon	$2,875 87		
	Sale of Virginia military lands	205 64		
			$3,081 51	
	From rents of house—			
	President W. H. Scott	$423 50		
	Professor Townshend	300 00		
	Professor Derby	240 00		
	Professor McFarland	450 00		
	Professor Mendenhall	360 00		
	Professor Tuttle	420 00		
			$2,193 50	
	From Professor Norton for supplies to students	$99 82		
	From amount overpaid to J. & H. Berge, returned	7 75		
			$107 57	
Total receipts during the year				51,241 76
Total receipts, including above balance				$54,282 25

CONTRA, CR.

Nov. 15, 1884. By disbursements as follows (for the particular items, see detailed statement V):

For support and maintenance of the university, viz.:

For salaries of faculty, teachers, assistants, other officials, and regular employes	$35,591 82	
For expenses of board of trustees	383 45	
For fire insurance	190 00	
For fuel	1,405 85	
For telephone service	125 00	
For other current expenses	1,540 58	
		$39,236 65
For department supplies	$4,317 48	
For furniture not included in dep't supplies	237 45	
For library	162 62	
For farm and lawn expenses	478 65	
For improvements	468 11	
For repairs	489 96	
For farmers' institutes	179 98	
		6,324 25
For expenses incident to Virginia military lands	$516 64	
For account of three new residences (paid from net proceeds of Virginia military lands)	542 89	
		1,059 53

Total disbursements	$46,620 43
Balance of cash on hand this day	7,661 82

STATEMENT II.

VIRGINIA MILITARY LAND SALES.

The cash receipts into the treasury from the proceeds of the sales of these lands, as reported to November 15, 1883 (page 60 of the 13th annual report) were		$54,440 30
Receipts during fiscal year, 1884		3,081 51
Total receipts to November 15, 1884		$57,521 81
Total expenses on this account to November 15, 1883, as stated in last report	$19,851 85	
Expenses for current year	516 64	
Total expenses to date		20,368 49
Balance showing net receipts to date		$37,153 32
Of this amount there was paid into the state treasury to the credit of the endowment fund, as stated in the last annual report	$13,665 84	

Expended for the construction of three residences for professors to November 15, 1883	$16,646 26		
For same account during current year	542 89	17,189 15	
Total expenditures from this fund accounted for			30,854 99
Leaving a balance amounting to			$6,298 33

This balance is included in the general cash receipts, the act requiring the net receipts from this source to be paid into the state treasury, to the credit of the endowment fund, having been repealed.

STATEMENT III.

SHOWING THE AMOUNT OF THE OHIO STATE UNIVERSITY ENDOWMENT FUND, COMPUTED IN ACCORDANCE WITH THE PROVISIONS OF THE ACT PASSED FEBRUARY 10, 1870, O. L., VOL. 67, PAGE 15, AND SECTIONS 3433 AND 3446, REVISED STATUTES.

The principal of the endowment fund, as reported last year to July 1, 1883, was			$537,841 46
Requisitions for the semi-annual interest on this sum to January 1, 1884, and the same to July 1, 1884, amounting to $32,270.68, were made upon and paid from the state treasury, as follows:			
December 29, 1883	$4,000 00		
January 26, 1884	4,000 00		
February 4, 1884	8,135 34	$16,135 34	
March 1, 1884	$5,000 00		
May 2, 1884	5,000 00		
June 30, 1884	6,135 34	16,135 34	
Total			32,270 68
Leaving the principal July 1, 1884, the same as last reported			$537,841 46

The annual income from which, at six per cent., is $32,270.48.

There will be inevitably an *apparent* discrepancy between this statement and that taken from the books of the auditor of state, and the cash statement made in this report. A remedy has been sought in an attempt to have the statutes so amended that the interest should be calculated to the end of the fiscal year, but it has been sought in vain. The statement (I) of cash received shows the sum of $8,000 received in November, 1883, on account of interest accrued prior to July 1, 1883, and of $5,000 drawn in October, 1884, on account of interest accrued since July 1, 1884, making a total of cash received during the fiscal year, 1884, of $40,270.68. While the above exhibit shows only the sum of $32,270.68 drawn during the interest calculating periods from July 1, 1883, to July 1, 1884.

STATEMENT IV.

SHOWING THE DETAILS OF CASH RECEIPTS FROM ALL SOURCES DURING THE FISCAL YEAR ENDING NOVEMBER 15, 1884, BY HENRY S. BABBITT, TREASURER.

Date.		From whom received, and on what account.	Amount.	Total.
1883.				
Nov.	16	To balance on hand from last year		$3,040 49
	19	From C. A. Barton, Va. Mil. Land, sale to M. V. B. Rankin	$40 00	
	19	From C. A. Barton, Va. Mil. Land, sale to T. R. Scott	30 00	
	19	" Pres't W. H. Scott, house rent, $\frac{2}{10}$	77 00	
				147 00
	30	" State treasury, income		3,000 00
Dec.	10	" R. W. McFarland, house rent, $\frac{1}{10}$	$45 00	
		" T. C. Mendenhall, " "	40 00	
		" J. Hall, Va. Mil. Land, note $76 66		
		" " " interest 10 04		
			86 70	
		" Vincent Beaver, Va. Mil. Land, note.. $32 47		
		" " " int'st. 5 86		
			38 33	
				210 03
	24	" Thos. W. Smith, Va. Mil. Land, note.. $25 00		
		" " " int'st. 3 00		
			$28 00	
		" H'ry Owsler, Va. Mil. Land, notes.....$241 29		
		" " " interest.. 27 15		
			268 44	
		" Prof. McFarland, house rent, $\frac{1}{10}$	45 00	
		" Prof. Mendenhall, "	40 00	
		" Prof. Tuttle, " $\frac{4}{10}$	140 00	
				521 44
	29	" State treasury, income		4,000 00
		" H'ry Owsler, Va. Mil. Land, notes..... $64 31		
		" " " interest.. 3 09		
			$67 40	
		" C. A. Barton, Va. Mil. Land, sale to W. V. McCoy	135 64	
		" J. G. Noel, Va. Mil. Land, interest on notes..	20 00	
		" Prof. S. C. Derby, 2 months rent, to Jan'y 1..	40 00	
				263 04
	31	" A. M. Green, Va. Mil. Land, note	$5 00	
		" " " interest	25	
1884.				5 25
Jan'y	17	" Pres't Scott, house rent, $\frac{2}{10}$		77 00
	25	" E. A. Legg, Va. Mil. Land, note	$25 75	
		" Wm. Wykoff, Va. Mil. Land, note	6 00	
		" Wm. McCoy, Va. Mil. Land, 2 notes.. $96 80		
		" " " interest. 24 17		
			120 97	
				152 72
Sept.	16	" Prof. S. C. Derby, house rent	$20 00	
		" Isaac G. Noel, Va. Mil. Land, note	20 00	
		" Henry Owsler, " "	10 75	
		" J. & H. Berge, amount overpaid Nov. 4	7 75	
				58 50
	30	" Prof. Mendenhall, house rent	$40 00	
		" Prof. Derby	40 00	
		" Prof. McFarland	45 00	
				125 00

STATEMENT IV—Continued.

Date.	From whom received, and on what account.	Amount.	Total.
1884.			
Oct. 13	From State treasury, income	....	$5,000 00
20	" Pres't Scott, house rent, June and Sept	$77 00	
	" Prof. Tuttle, house rent, Sept. and Oct	70 00	
	" J. F. M. & H. B. Humphrey, interest on Va. Mil. Land note	50 00	
			197 00
Nov. 1	" Prof. McFarland, house rent	$45 00	
	" Prof. S. C. Derby, "	20 00	
	" Fall term bills, viz.—		
	Incidental fees $1,361 00		
	Chemical Laboratory fees 150 00		
	Physical " " 117 00		
	Physiology " " 139 00		
	Agricul. Chem. Lab'y fees 32 00		
	Stall rent 11 00		
	Sale of material 5 00		
		1,815 00	
			1,880 00
5	" Prof. Mendenhall, house rent, paid May 20	$40 00	
	" H. M. Kinseley, balance on Va. Mil. Land notes	49 65	
			89 65
7	" State Treasury, appropriation for expenses of Trustees	....	450 00
8	" Henry Morten, Va. Mil. Land, notes (6)	$357 66	
	" " interest on notes	85 96	
			443 62
	Total receipts this year, including balance of $3,040.49 of cash on hand, Nov. 16, '83	....	54,282 25
	Total disbursements for same period (see Statement V. for details)	....	46,620 43
	Balance being cash on hand this day	....	$7,661 82
May 2	" State Treasury, income	....	5,000 00
9	" Prof. Mendenhall, house rent, ⅒	$40 00	
	" Prof. Derby, house rent, April	20 00	
	" Prof. Townshend, house rent, one year	300 00	
	" Thos. W. Smith, Va. Mil. Land, note	57 30	
	" Jacob Butler, " "	70 36	
			487 66
17	" J. R. English, Va. Mil. Land	$30 00	
	" Mary J. Reed, " bal. of interest	2 30	
	" Spring term bills	1,564 00	
			1,596 30
June 16	" Pres't Scott, house rent, for April and May	$77 00	
	" Prof. Mendenhall, house rent, ⅒	40 00	
	" Prof. McFarland, house rent, ⅒	45 00	
	" Prof. Tuttle, house rent	210 00	
	" Prof. Derby, house rent, May	20 00	
	" J. F. Miles, Va. Mil. Land, 3 notes $79 50		
	" " " interest 29 38		
		108 88	
			500 88
19	" W. R. Walker, Va. Mil. Land, 2 notes $46 00		
	" " " inter'st 4 22		
		50 22	

STATEMENT IV—Continued.

Date.	From whom received, and on what account.	Amount.	Total.
1884.			
June 19	From H. Owsler, Va. Mil. Land, notes	$251 00	
	" J. W. Mills, " "	112 00	
			$418 22
30	" Prof. S. A. Norton, sale of chemicals	$99 82	
	" Prof. S. C. Derby, house rent	20 00	
			119 82
	" State treasury, income		6,135 34
July 19	" Prof. McFarland, house rent	45 00	
	" H. Owsler, Va. Mil. Land, note	53 50	
	" Wm. Wykoff, Va. Mil Land, note	18 00	
	" J. F. Miles, " "	158 75	
			270 25
Jan'y 26	" Prof. McFarland, house rent, $\frac{1}{10}$	$45 00	
	" Prof. Derby, house rent, for June	20 00	
			65 00
	" State treasury, income		4,000 00
Feb'y 4	" C. A. Barton, on account of old claim, viz.: Estate of Thos. Dungan, Va. Mil. Land, note	$10 75	
	" Prof. Mendenhall, house rent, $\frac{1}{10}$	40 00	
			50 75
	" State treasury, income		8,135 34
23	" Winter term bills, viz —		
	Incidental fees $1,447 50		
	Chemical Laboratory fees 170 00		
	Physical " " 119 00		
	Stall rent 23 00		
		$1,759 50	
	" Prof. McFarland, house rent, $\frac{1}{10}$	45 00	
			1,804 50
March 1	" Prof. Mendenhall, house rent, $\frac{1}{10}$	$40 00	
	" Prof. Derby, house rent, February	20 00	
			60 00
	" State treasury, income		5,000 00
17	" J. Ashbaugh, Va. Mil. Land, note, interest	$63 00	
	" H'ry Morten (6), " " "	333 00	
	" Leroy Moss, " " "	14 73	
			410 73
22	" J. A. McMurray, Va. Mil. Land, note, part payment	$80 55	
	" Wm. Wykoff, Va. Mil. Land, note, part payment	10 00	
	" Prof. McFarland, house rent, $\frac{1}{10}$	45 00	
			135 55
April 5	" Ezekiel Cast, Va. Mil. Land, note, part	$34 75	
	" J. Pauley, " "	20 00	
	" M. D. Hibbs, " "	88 00	
	" Pres't Scott, house rent, to April 1	115 50	
	" Prof. Derby, "	20 00	
	" Prof. Mendenhall, house rent, $\frac{1}{10}$	40 00	
			318 25
May 2	" Abigail Guenther, Va. Mil. Land, note	$33 62	
	" E. Cast, Va. Mil. Land, note, interest	39 30	
	" Prof. McFarland, house rent, $\frac{1}{10}$	45 00	
			117 92
			$31,515 01

STATEMENT V.

A Detailed Account of Disbursements, by Henry S. Babbitt, Treasurer, during the Fiscal Year ending Saturday, November 15, 1884.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
Nov. 16	977	Chas. A. Barton, agent	Salary, $280, and expenses, 23.21 per cent., V. M. Lands	$303 21
	978	S. H. Ellis	Expenses Trustees	16 50
	979	L. B. Wing	"	9 75
	980	T. A. Cowgill	"	16 10
	981	J. B. Jamison	"	14 50
	982	T. J. Godfrey	"	37 10
	983	T. J. Scanlan	Sewer drain, dormitory	35 52
	984	N. Patterson	Repairing cupola	6 00
	985	Wm. Brotherton	Work on lawn	50 65
17	986	Theo. Schuchardt	Chemicals	179 64
	987	W. H. Scott	Expenses during vacation	29 05
19	988	James Kelly	Lawn keeper, October	35 00
24	989	R. W. McFarland	Salary for November	225 00
	990	W. H. Scott	"	275 00
	991	Edward Orton	"	225 00
	992	S. A. Norton	"	225 00
	993	N. S. Townshend	"	225 00
	994	A H. Tuttle	"	225 00
	995	S. W. Robinson	"	225 00
	996	F. H. Eldridge	Salary as ass't, 3 months	60 00
	997	T. C. Mendenhall	Salary for November	225 00
	998	N. W. Lord	"	100 00
	999	Cynthia U. Weld	"	120 00
	1000	S. C. Derby	"	225 00
	1001	Emma Lehner	Ass't lib'n, 3 months	37 50
	1002	W. R. Lazenby	Salary for November	200 00
	1003	Josiah R. Smith	"	225 00
	1004	Geo. Ruhlen	"	50 00
	1005	Alice Williams	"	80 00
	1006	D. O'Brien	"	60 00
	1007	C. F. Marvin	"	50 00
	1008	G. W. McCoard	"	120 00
	1009	C. N. Brown	"	60 00
	1010	M. Dillon	"	125 00
26	1011	Warmbrunner,Quitily&Co	Chemical apparatus	418 80
30	1012	M. N. Mix	President's clerk, 3 months	22 50
Dec. 1	1013	Chas. F. Scott	Ass't Phys. Lab., 3 months	30 00
	1014	Western Electric Co	Two galvanometers	175 00
5	1015	Jas Kelly	Lawn keeper	35 00
	1016	Laplaw & Myers	3,200 paving brick	25 60
	1017	S. M. & J. F. Coe	7,000 "	49 00
	1018	J. Gilliland	12 days' labor	18 00
	1019	C. Merrick	1 "	1 50
	1020	J. Price	3 "	9 00
	1021	W. Brotherton	5 days' hauling	12 00
	1022	N. Hall	2½ "	7 50
	1023	J. Rhoades	4 "	12 00
	1024	J. Conrad	4½ "	20 25
	1025	M. T. Dozer	9 hours' work	1 35
	1026	Slade & Kelton	Lumber	49 08
	1027	W. S. Carlisle & Co	4 tables	10 00

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
Dec. 5	1028	W. S. Devol	35 hours' work, etc.	$8 33
	1029	S. A. Glenn	Paper and printing	26 25
	1030	Abbott, Stoner & Horn	Hardware	17 16
	1031	Col. Gas L & Coke Co	Coke	5 60
	1032	G. H. Twiss	Electric bells	29 99
	1033	Green, Joyce & Co	Gross of crayons	5 13
	1034	Woodrow, Scott & McAllister	Desk and case	99 00
	1035	Jacob Mooter	Carpentry, repairs	14 75
	1036	Edward Orton	Supplies for museum	12 50
	1037	J. M. & W. Westwater	Phys. Lab'y supplies	7 15
	1038	Col. Rubber Co	Rubber tubing for same	3 00
	1039	Electric Supply Co	Standard condenser	45 10
	1040	J. M. Stuart	Carriages Prof. Short's funeral	8 00
	1041	A. H. Smythe	Stationery	4 87
	1042	Col. Transfer Co	Freights and drayage	12 76
	1043	Bausch & Lomb Optical Co	Supplies Phys. dep't	64 29
	1044	Harrison Cole	"	19 13
	1045	J. & H. Berge	Supplies Mining dep't	172 65
10	1046	S. C. Derby	Books for library	15 00
	1047	A. H. Roffe & Co	Magazines	63 10
15	1048	Albert Allen	Salary to date	125 00
19	1049	W. H. Scott	Salary for December	275 00
	1050	Edward Orton	"	225 00
	1051	S. A. Norton	"	225 00
	1052	N. S. Townshend	"	225 00
	1053	R. W. McFarland	"	225 00
	1054	A. H. Tuttle	"	225 00
	1055	S. W. Robinson	Salary for Dec. (less deduction for absence—balance)	139 32
	1056	T. C. Mendenhall	Salary for December	225 00
	1057	N. W. Lord	"	100 00
	1058	Cynthia U. Weld	"	120 00
	1059	S. C. Derby	"	225 00
	1060	W. R. Lazenby	"	200 00
	1061	J. R. Smith	"	225 00
	1062	Geo. Ruhlen	"	50 00
	1063	F. H. Eldridge	"	20 00
	1064	Alice Williams	"	80 00
	1065	M. Dillon	"	125 00
	1066	D. O'Brien	"	60 00
	1067	G. W. McCoard	"	120 00
	1068	C. F. Marvin	"	50 00
	1069	C. N. Brown	"	60 00
21	1070	J. & H. Berge	Chemical supplies	162 25
31	1071	Henry S. Babbitt	Salary to date	50 00
	1072	Albert Allen	"	62 50
	1073	B. Westermann	Books for library	4 37
	1074	Strobridge Litho'g Co	3,000 letter heads	24 50
	1075	Col. Bolt Works	Mech'l lab'y acc't	2 00
	1076	Ray & Jacobs	Rep'g cistern at dormitory	9 00
	1077	Slade & Kelton	Supplies Mech'l Lab'y	13 82
	1078	Stitt, Price & Co	Lime	7 15
	1079	Harvey Bancroft, agent	Insurance on barns	30 00
	1080	Abbott, Stoner & Horn	Hardware	4 98

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1883.				
Dec. 31	1081	W. A. Hershiser	Mch'l Lab'y supplies	$4 86
	1082	Albert Allen	Express charges	40
	1083	Lyonsdale Coal Co	$78\frac{11}{100}$ tons coal	219 45
	1084	Asa Gray	3 parts Flora Brazil	28 90
1884.				
Jan. 2	1085	M. N. Mix	Pres't's clerk for December	7 50
	1086	Kaiser & Bro	Repairs on buildings	45 61
14	1087	L. D. Myers, P. M	Postage	70 68
18	1088	S. H. Ellis	Trustee	16 50
	1089	T. A. Cowgill	"	11 40
	1090	J. B. Jamison	"	17 60
19	1091	R. W. McFarland	Paid for setting chimney tops	8 00
	1092	"	Paid for watching and repairing gate	5 50
	1093	Lyonsdale Coal Co	92¼ tons coal	230 62
	1094	Jas. Kelly	Lawn keeper, December	35 00
	1095	Columbus Transfer Co	Freight and drayage	88 77
	1096	Central Union Telep. Co	Use of instruments to Apr. 1	12 50
	1097	Eimer & Amend	One voltameter and other supplies	55 89
	1098	Western Electric Co	Electrical apparatus	93 25
	1099	Fauth & Co	Dividing engine	405 30
	1100	Green, Joyce & Co	6 storm-glasses	1 38
	1101	Earhart Printing Co	Printi'g vouchers and postals	7 00
	1102	G. W. Gleason	4 news files, Library	1 80
	1103	A. H. Smythe	Stationery	11 84
	1104	Stitt, Price & Co	Lime	2 20
	1105	Cherrington & Robinson	Rubber stamps	1 25
	1106	Ohio State Journal Co	5,000 sheets paper, cut to order	5 04
	1107	W. A. Hershiser	Lumber, Mech'l department, $9.12; repairs, $4.79	13 91
	1108	The C., B, & S. P. W'ks Co	Materials, Mech'l department, $14.55; repairs, $4.93	19 48
	1109	Wm. Halley	Plumbing at boarding-hall	5 25
	1110	Columbus Sewer Pipe Co	10 2 ft. round tops	10 50
	1111	A. H. Smythe	Stationery	3 00
	1112	Aston & Huff	Repairing flue	2 50
	1113	G. W. Gleason	150 sh'ts chronograph paper	2 50
	1114	Kauffman, Latimer & Co	Chem. Lab'y supplies	15 20
	1115	D. H. Dickson	60 hours' work, Mech'l dep't	9 00
	1116	G. W. Gleason	Stationery	15 16
	1117	"	Vol. 16, Ency. Brit. Library	8 00
	1118	C. S. Amy	Work for Mech'l dep't, $20; repairs for Mech'l dep't, $5.40; work on lawn, $3	28 40
22	1119	A. H. Tuttle	Salary for January	225 00
	1120	Chas. F. Scott	Ass't Phys. Lab'y	10 00
25	1121	M. Dillon	Salary, January	125 00
26	1122	D. O'Brien	Ass't Chemist, January	60 00
	1123	S. A. Norton	Salary, January	225 00
	1124	Edward Orton	"	225 00
	1125	C. N. Brown	Ass't in Mathematics	60 00
	1126	R. W. McFarland	Salary for January	225 00
	1127	J. R. Smith	" "	225 00

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1884.				
Jan. 28	1128	Geo. Ruhlen	Salary for January	$50 00
	1129	G. W. McCoard	“ “	120 00
	1130	S. C. Derby	“ “	225 00
	1131	S. W. Robinson	“ “	225 00
	1132	Alice Williams	“ “	80 00
	1133	W. H. Scott	“ “	275 00
29	1134	C. F. Marvin	“ “	50 00
	1135	W. R. Lazenby	“ “	200 00
Feb. 2	1136	N. W. Lord	“ “	100 00
	1137	Emma Lehner	Librarian, 2 months	25 00
	1138	F. H. Eldridge	Ass't in Phys. dep't, Jan'y	20 00
	1139	N. S. Townshend	Salary for January	225 00
	1140	T. C. Mendenhall	“ “	225 00
11	1141	Jas. Kelly	Lawn keeper, January	35 00
12	1142	Jno. T. Stuck	Shelving in vault	11 85
13	1143	Scioto Boiler Works	Repairs to boilers	51 60
14	1144	Wm. Halley	Rep. Pres'ts house, $7.25; rep. Phy. and Zoo. dep't, $13.85	21 10
15	1145	A. H. Tuttle	Supplies, Phy. and Zoo. dep't	30 69
	1146	“	Farmers' institutes	17 10
	1147	Halm & Bellows Furt're Co	Tables, Phy. and Zoo. dep't	110 00
	1148	J. W. Queen & Co	Supplies, “ “	1,049 14
	1149	R. Jones & Son	Supplies, $25.34; and equipments, $30.50, Phy. and Zoo.	55 84
	1150	Geo. W. Twiss	Wire for same	3 30
	1151	Bell Brothers	Lamp for same	2 00
	1152	Kauffman, Latimer & Co	Supplies for same	46 74
	1153	Eimer & Amend	“ “	78 51
	1154	Columbus Transfer Co	Freight and drayage	1 00
	1155	Akin & Hampson	Chimney tops, Prof. resid'ce	26 25
	1156	N. W. Lord	Exp., Farmers' institutes	7 75
	1157	Col. & H. Coal & Iron Co	$78\frac{1958}{2000}$ tons coal	211 94
	1158	J. & G. Butler	Portland cement	4 25
	1159	Central Union Telep. Co	1 qr. rent, instruments	12 50
	1160	Wassal Fire Clay Co	200 bricks and 2 bbls. clay	5 00
	1161	M. Lukanitsch	Supplies, Mech'l dep't	13 69
	1162	Geo. Ruhlen	Equip's, clean'g and repair'g arms	29 00
	1163	T. C. Mendenhall	Farmers' institutes	22 80
	1164	E. R. Eaton	Repairs to pumps, etc	11 40
	1165	Reynolds Brothers	Supplies, Mech'l dep't	20 61
	1166	J. D. Riggs	Rep'g heat'ng app's at Lab's	15 85
	1167	The C., B. & S. P. W. Co	Supplies, Mech' Lab'y, $1.87; rep's heat'g app's, $10.57	12 44
16	1168	Edward Hughes	Labor at green-house and repairing boiler	27 00
18	1169	A. H. Tuttle	Salary for February	225 00
	1170	Alexis Cope	to 15th inst.	150 00
	1171	Geo. W. McCoard	for February	120 00
	1172	D. O'Brien	Ass't Chemist	60 00
23	1173	S. A. Norton	Salary for February	225 00
	1174	R. W. McFarland	“ “	225 00
Mar. 1	1175	C. N. Brown	“ “	60 00
	1176	M. Dillon	“ “	125 00

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1884.				
Mar. 1	1177	Edward Orton	Salary for February	$225 00
	1178	N. W. Lord	" "	100 00
	1179	Josiah R. Smith	" "	225 00
	1180	W. R. Lazenby	" "	200 00
	1181	S. C. Derby	" "	225 00
	1182	T. C. Mendenhall	" "	225 00
	1183	Alice Williams	" "	80 00
4	1184	C. F. Marvin	" "	50 00
	1185	Sam'l Kendrick	Half proceeds W. W. Wormsley's note, account V. M land, paid Nov. 10, 1883	38 43
	1186	W. H. Scott	Salary for February	275 00
	1187	"	Exp. Farmers' institutes	40 60
5	1188	N. S. Townshend	Salary February	225 00
	1189	Jas. Kelly	Lawn keeper February	35 00
	1190	Geo. Ruhlen	Ass't Mathematics	50 00
	1191	C. U. Weld	Salary for 2 months	240 00
7	1192	H. A. Bridge	Supplies for Phy. & Zoo. dep't	17 50
	1193	Hann & Adair	Printing	4 00
	1194	Kilbourne, Jones & Co	Supplies Mech'l dep't	17 93
	1195	Hayden & Baker	" "	8 47
8	1196	S. H. Ellis	Trustee expenses	10 80
	1197	Sheppard & Co	Brooms, brushes and soap	19 10
	1198	J. B. Jamison	Trustee expenses	11 85
	1199	Meyer & Co	1,000 bricks for Hort. dep't	6 50
	1200	F. H. Eldridge	Salary for February	20 00
	1201	A. H. Tuttle	" March	225 00
	1202	S. W. Robinson	" February	225 00
10	1203	Col. Gas L. & Coke Co	30 bu. coke	6 40
13	1204	A. H. Rarig	Casting for boiler front	9 50
15	1205	M. N. Mix	President's clerk, 2 months	15 00
20	1206	D. O'Brien	Salary for March	60 00
22	1207	C. N. Brown	"	60 00
	1208	R. W. McFarland	"	225 00
	1209	N. W. Lord	"	100 00
	1210	G. W. McCoard	"	120 00
26	1211	Emma Lehner	Librarian, 2 months	25 00
	1212	J. R. Smith	Salary for March	225 00
	1213	C. F. Marvin	"	50 00
	1214	Edward Orton	Supplies Geol. dep't	21 75
27	1215	"	Salary for March	225 00
	1216	Geo. Ruhlen	"	50 00
	1217	T. M. Dillon	"	125 00
	1218	W. H. Scott	"	275 00
28	1219	S. A. Norton	"	225 00
29	1220	Alice Williams	"	80 00
	1221	W. R. Lazenby	"	200 00
31	1222	Alexis Cope	Salary to date	150 00
	1223	S. C. Derby	"	225 00
April 1	1224	N. S. Townshend	"	225 00
3	1225	A. H. Tuttle	Paid for digg'g drain for cellar	34 75
	1226	"	Salary for April	225 00
4	1227	Jas. Kelly	Lawn keeper	35 00
5	1228	Alexis Cope	Paid for telegram	75
	1229	Wm. Halley	Plumbing repairs	12 95

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1884.				
April 5	1230	Col. & H. Coal & Iron Co..	34 tons coal..........................	$87 23
	1231	Aston & Huff............	Resetting grates dormitory ..	7 25
	1232	W. C. Mills	Copying class records	18 00
	1233	Geo. M. Maris & Co.........	Supplies Mech'l Lab'y.........	1 65
	1234	Hann & Adair	Printing	1 15
	1235	P. Hayden & Son	Ton Bloss. coal Mech'l Lab'y	4 00
	1236	T. C. Mendenhall............	Salary March	225 00
	1237	Col. Transfer Co	Freight and drayage	3 63
	1238	Siebert & Lilley...............	Tar board and record books..	56 30
	1239	Col. Sewer Pipe Co...........	Pipe for grounds.................	87 90
	1240	J. E. Shauck......................	3 months' care of gate	5 00
	1241	N. S. Townshend......	Farmers' institutes.............	30 00
	1242	Adams Express Co...........	Transporting reports	2 20
	1243	American Express Co......	"	1 55
	1244	Wm. Fish & Sons	Flagging for Phy. Lab'y	5 00
	1245	Wm. Gardner	2 retorts, $40, and 11 tiles, $13.75, for Phy. Lab'y	53 75
	1246	N. S. Townshend.............	Expenses Farmers' institutes	39 93
	1247	S. W. obinson.....	Salary for March.................	225 00
	1248	M. N. Mix.........................	President's clerk March	7 50
16	1249	F. H. Eldridge..	Salary for March.................	20 00
	1250	J. B. Jamison...................	Trustees expenses..............	14 25
	1251	T. A. Cowgill	"	30 25
17	1252	R. A. Rodgers & Co	100 M. sheets paper.	35 25
	1253	Door. Sash & Lumber Co..	Load saw-dust	1 50
	1254	W. R. Lazenby................	Expenses Farmers' institutes	21 80
	1255	Myers Bros......................	1,000 class cards.................	5 00
	1256	Geo. H. Twiss	Stationery for President......	1 50
	1257	Cent. Union Telephone Co	Quarter's rent time signal line and two instruments	50 00
	1258	S. A. Norton....................	Paid Kilbourne, Jones & Co. for hardware Chem. Lab'y	10 50
	1259	Col. Transfer Co	Freight and drayage	13 11
	1260	W. H. Scott.....................	Postage and stationery	9 09
	1261	S. A. Norton...................	Paid Kinnear & Co. et al. for fixtures Chem. Lab'y........	68 22
	1262	Col. & H. Coal & Iron Co..	120 tons coal......................	302 08
	1263	Noble Patterson..............	Cementing cellar, Prof. res...	8 62
	1264	G. C. Stechert..................	Greek book.........................	2 72
	1265	T. C. Mendenhall	Ruling diamond..................	8 00
25	1266	G. W. McCoard................	Salary for April..................	120 00
	1267	N. W. Lord.......................	"	100 00
	1268	Cynthia U. Weld	Salary for March.................	120 00
	1269	W. H. Scott......................	Salary for April...................	275 00
26	1270	C. F. Marvin	"	50 00
	1271	Alexis Cope	"	100 00
	1272	S. A. Norton.....................	"	225 00
	1273	J. R. Smith	"	225 00
	1274	M. Dillon.........................	"	125 00
29	1275	R. W. McFarland	"	225 00
30	1276	Edward Orton	"	225 00
	1277	W. R. Lazenby....	"	200 00
May 1	1278	C N. Brown.....................	"	60 00
	1279	M. N. Mix	Clerk to President to date ...	15 00
	1280	D. O'Brien.......................	Salary for April..................	60 00

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1884.				
May 1	1281	Geo. Ruhlen	Salary for April	$50 00
	1282	T. C. Mendenhall	"	225 00
3	1283	Alice Williams	"	80 00
	1284	S. C. Derby	"	225 00
6	1285	N. S. Townshend	"	225 00
	1286	Thos. J. Godfrey	Trustee expenses	12 35
7	1287	S. W. Robinson	Salary for April	225 00
	1288	S. H. Ellis	Trustees expense	12 25
	1289	Thos. A. Cowgill	"	9 80
8	1290	W. S. Carlisle & Co	10 tables Horticultural dep't	25 00
	1291	Jas. Kelly	Lawn keeper	35 00
9	1292	W. U. Telegraph Co	Messages April	96
10	1893	R. W. McFarland	Paid for sand and gravel, residences	2 50
	1294	Wm. Bracey	5½ days on Hort. Hall	22 00
12	1295	Geo. Ruhlen	Cleaning equipments & arms	10 00
16	1296	M. N. Mix	Extra services as Pre's clerk	25 00
17	1297	E. E. Sparks	Ass't in Preparatory dep't	25 00
	1298	D. Appleton & Co	Astronomical charts	75 00
	1299	Slade & Kelton	Lumber Phys. dep't	6 96
	1300	Emma C. Lehner	Ass't Librarian, 1½ months	18 75
19	1301	The C. B. & S. P. W. Co	Pipe cutting and supplies Mech'l dep't	2 29
20	1302	Alexis Cope	Salary for May	100 00
	1303	C. S. Amy	Labor Mech'l dep't.	1 50
21	1304	G. H. Twiss	Stationery	2 10
24	1305	A. H. Tuttle	Salary for May	225 00
	1306	N. W. Lord	"	100 00
	1307	J. R. Smith	"	225 00
	1308	Geo. Ruhlen	"	50 00
	1309	F. H. Eldridge	Salary for April and May	40 00
	1310	G. W. McCoard	" May	120 00
	1311	S. A. Norton	" "	225 00
	1312	W. C. Mills	Copying class records	10 50
26	1313	J. & G. Butler	7 bbls. cement	9 55
	1314	N. E. Lovejoy & Son	Lumber for green-house	23 30
28	1315	W. H. Scott	Salary for May	275 00
29	1316	C. N. Brown	"	60 00
31	1317	C. F. Marvin	"	50 00
	1318	Edward Orton	"	225 00
	1319	T. C. Mendenhall	"	225 00
	1320	R. W. McFarland	"	225 00
	1321	D. O'Brien	"	60 00
	1322	M. Dillon	"	125 00
	1323	S. W. Robinson	"	225 00
	1324	Alice Williams	"	80 00
June 3	1325	A. H. Tuttle	Salary for June	225 00
4	1326	Jas. Kelly	Lawn keeper May	35 00
	1327	N. S. Townshend	Salary for May	225 00
	1328	"	Furniture for Nat. History Society room	6 20
	1329	W. R. Lazenby	Salary for May	200 00
	1330	S. P. Watt	Glass, etc. Phys. Lab'y	7 75
5	1331	Futerer & Co	Rep'g water pipes residences	39 45
7	1332	N. W. Lord	Salary for June	100 00

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1884.				
June 7	1333	N. W. Lord	Supplies Mining dep't	$12 12
	1334	S. C. Derby	Salary for May	225 00
9	1335	A. K. Rarig & Co	57 lbs. brass, Mech'l dep't	6 87
13	1336	C. N. Brown	Salary for June	60 00
14	1337	Cynthia U. Weld	“ 3 months	360 00
	1338	Alice Williams	“ June	80 00
	1339	Josiah R. Smith	“ “	225 00
	1340	D. O'Brien	“ “	60 00
16	1341	C. F. Marvin	“ “	50 60
	1342	A. H. Tuttle	Supplies Phy. and Zoo. dep't	5 75
	1343	Alexis Cope	Salary for June	100 00
	1344	E. E. Sparks	Ass't in Preparatory dep't	25 00
18	1345	Chas. T. Scott	“ Phys. Lab'y from January 1	60 00
	1346	N. S. Townshend	To purchase supplies Ag'l dep't, during proposed visit to Europe	300 00
	1347	Peter H. Clark	Trustees expense	14 90
	1348	Thos. A. Cowgill	“	12 75
	1349	J. B. Jamison	“	17 50
	1350	S. H. Ellis	“	13 50
	1351	L. B. Wing	“ 5 months	28 00
	1352	W. H. Scott	Salary for June	275 00
19	1353	N. S. Townshend	“	225 00
	1354	T. J. Godfrey	Trustee expenses	17 60
	1355	W. W. Keifer	Adv. in “Makio”	10 00
	1356	J B Jamison	Trustee expenses	1 00
	1657	F. H. Eldridge	Salary June	20 00
	1358	Emma C Lehner	Ass't Librarian	18 75
	1359	W. R. Lazenby	Salary June	200 00
	1360	M. N. Mix	President's clerk May & June	32 50
	1361	Geo. Ruhlen	Salary June	50 00
	1362	Chas. A. Barton	Agt. V. M. lands, 7 months	175 00
20	1363	Edward Orton	Salary June	225 00
	1364	T. C. Mendenhall	“	225 00
	1365	G. W. McCoard	“	120 00
21	1366	W. C. Mills	Copying college records	9 30
	1367	R. W. McFarland	Salary June	225 00
23	1368	Henry S. Babbitt	“ 6 month	200 00
	1369	S. A. Norton	“ June	225 00
	1370	Geo. Ruhlen	Expense chang. ordnance	42 14
24	1371	J. M. Stuart	Carriage hire	8 00
27	1372	M. Dillon	Salary for June	125 00
30	1373	S. C. Derby	“	225 00
July 3	1374	Jas. Kelly	Lawn keeper	35 00
	1375	T. H. Schneider	Rent of piano, 9 months	45 00
	1376	Bowe & Beggs	One rug	5 00
5	1377	S. W. Robinson	Salary for June	225 00
7	1378	Halm & Bellows Furn. Co.	2 doz. chairs	15 50
	1379	J. M. Stuart	Commencement, carriages	7 00
8	1380	Washington Townsend	Cleaning green-house	10 50
9	1381	J. & H. Berge	Supplies Chem. Lab'y	120 17
	1382	Tobin & English	“	57 96
	1383	Sidney A. Norton	Supplies, $45.69; library, $21.25	67 04
	1384	R. W. McFarland	Laborers on stable	33 02

STATEMENT V—Continued.

Date.	No. of Order.	To whom paid.	For what purpose.	Amount.
1884.				
July 9	1385	E. R. Kirk	Carpentry on stables	$33 00
	1386	Luther Hagar	" "	37 50
	1387	Dan'l Slyh	10 perches stone on stables	15 00
	1388	R. W. McFarland	Services as bursar and sup't campus	100 00
	1389	" "	Sundry commencem't exp's	19 50
	1390	Strobridge Lith. Co.	15 diplomas	15 00
	1391	E. R. Kirk	Balance due carpentry	10 00
10	1392	Kauffman, Lattimer & Co.	Supplies Phy. and Zoo. dep't	12 20
11	1393	J. & G. Butler & Co	1 bbl. cement, stables	3 50
	1394	Chas. M. Cott & Co	1000 commencem't progr'ms	8 75
	1395	Abbott, Stoner & Horn	Hardware for stables	17 60
	1396	F. B. Ihrig	Gutters, etc. for stables	15 55
	1397	R. O. Smith & Co	Lumber, for platform, $24.60 " " stables, $165.69	190 29
	1398	Siebert & Lilley	Envelopes, etc	63 75
19	1399	Alexis Cope	Salary to 15th	50 00
22	1400	Stitt, Price & Co	20 measures lime	2 20
	1401	Columbus Transfer Co	Freight and drayage	6 57
25	1402	Columbus P. O	P. O. stamps for Pres't	58 00
28	1403	M. Dillon	Salary—July	125 00
Aug. 2	1404	Alexis Cope	" to 1st	50 00
	1405	Col. & H. V. C. & I. Co	87 tons gas and 2 tons anthracite coal	249 67
7	1406	Geo. H. Twiss	Stationery	28 06
8	1407	W. U. Tel. Co	Messages	2 23
	1408	Gustav E. Stechert	1 Latin book, dep't supplies	6 85
	1409	E. W. Pegg	Supplies, Phy. and Zoo. dep't	13 00
	1410	J. & H. Berge	Supplies, Mining dep't	7 75
	1411	Columbus Barracks Band	Music at commencement	27 00
	1412	Williams & Co	City Directory	3 00
	1413	S. W. Robinson	Supplies for Mech'l lab'y	11 55
	1414	Halm, Bellows & Co	Rent of 40 doz. chairs	30 00
	1415	Kilbourne, Jones & Co	Saw handle, Mech'l dep't	50
	1416	S. C. Derby	Freight on library supplies, $2.37; hardware, 65c	3 02
	1417	Strobidge Lith. Co	300 letter h'ds and envel'p's	37 50
	1418	Groff's Package Delivery	Freight and drayage	3 65
	1419	Tobin & English	Laboratory supplies	20 10
	1420	A. H. Smythe	Class books and stationery	9 45
	1421	Franklin Ins. Co	Ins. prem. on dormitory	160 00
	1422	Cent. Union Telephone Co.	Rent, 2d inst. to Oct. 1	25 00
	1423	Western Electric Co	Balance for galvanometer	9 25
	1424	Amer. Express Co	Freights	2 70
	1425	Cherrington & Robinson	2 police badges	5 00
9	1426	J. T. Harris & Co	Plans and specifications for stable and add. to resid'ce	30 00
15	1427	Columbus P. O	Postage stamps and cards	15 00
16	1428	Jas. Kelly	Lawn-keeper—July	35 00
28	1429	M. Dillon	Salary for August	125 00
Sept. 3	1430	L. B. Wing	Trustee expenses	11 15
	1431	J. B. Jamison	" "	11 50
	1432	E. R. Kirk	25 days' work, Hort. hall	62 50
4	1433	Alexis Cope	Salary for August	100 00
	1434	S. H. Ellis	Trustee expenses	14 55

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1884. Sept. 4	1435	Columbus Transfer Co	Carriages, $15; freight on cannon, $58; drayage, $1.95	$74 95
12	1436	O. S. Journal Co	Printing 400 postals	1 00
	1437	Kershaw & Krauss	Bli'ds for lect're r'm, H't. h'll	33 75
13	1438	Jas. Kelly	Lawn-keeper—August	35 00
15	1439	Alexis Cope	Salary to date	50 00
16	1440	Col. & H. V. C. & I. Co	14¾ tons Anthracite coal	92 86
17	1441	N. W. Lord	Salary for Sept	100 00
20	1442	C. N. Brown	" "	100 00
	1443	C. N. Roth	Harvest, 1st to 19th	40 10
	1444	J. & G. Butler & Co	3 bbls. cement, Conservato'y	6 00
	1445	A. H. Tuttle	Salary for Sept	225 00
	1446	S. A. Norton	" "	225 00
	1447	M. Dillon	" "	125 00
	1448	Henry A. Weber	On acc't salary as Ass't Ch'st	100 00
	1449	G. W. McCoard	Salary for Sept	100 00
	1450	R. W. McFarland	" "	225 00
	1451	T. C. Mendenhall	" "	225 00
	1452	J. R. Smith	" "	225 00
	1453	S. C. Derby	" "	225 00
	1454	N. S. Townshend	" "	225 00
	1455	Alexis Cope	Salary to date	50 00
Oct. 1	1456	Edward Orton	" "	225 00
2	1457	J. E. Randall	Ass't Prof. Physics	50 00
	1458	W. H. Scott	Salary for Sept	275 00
	1459	M. N. Mix	Pres. clerk for Sept	12 50
	1460	W. R. Lazenby	Salary for Sept	200 00
	1461	B. & O. Express Co	Freights	1 75
	1462	Richards & Co	Supplies for Mining dep't	10 98
	1463	Col. Sewer Pipe Co	Drain pipe for new residence	6 36
6	1464	Noble Patterson	Mason work on residence	3 00
	1465	Thos. Cottingham	Helping mason 1 day	1 75
	1466	J. D. Riggs	Labor at Laboratory	5 40
	1467	Hayden & Baker	Cistern cover—new resid'ce	1 20
	1468	Blackwood, Green & Co	Hardware	65
	1469	D. B. Phillips	Labor at new residence	6 15
	1470	Rockey & Link	Cleaning cistern at dorm't'y	18 00
	1471	J. & G. Butler & Co	One bbl. cement	1 40
	1472	Stitt, Price & Co	Lime and cement	15 90
	1473	D. H. Dickson	Labor in dep't	10 00
	1474	Noble Patterson	Work on retorts—gas works	38 00
	1475	Thos. Cottingham	Helping mason, 9 days	15 75
	1476	A. K. Rarig & Co	Castings, chimney stack, etc.	43 79
	1477	Noble Patterson	Mason w'k, $7.50; mater'l, $1	8 50
	1478	Thos. Cottingham	Helping mason on gr'n h'se	4 37
7	1479	R. O. Smith & Co	Lumber for green house	14 91
	1480	Ohio Farmer	Advertising	25 00
	1481	Geo. H. Twiss	Cray'ns and eras'rs for b'kb'd	7 90
	1482	Edwin Alden & Bro's	Advertising, as per contract	162 00
	1483	Kershaw, Krauss & Co	5 door mats	7 50
	1484	Halm & Bellows Furn. Co.	25 chairs for Chem. Labo'y	56 25
	1485	Siebert & Lilley	One tuition book	10 75
	1486	F. A. & L. Lesquereux	Repairing clock	1 50
	1487	Kershaw & Krauss	Materials for Mining dep't	2 38
	1488	Cent. Union Telephone Co.	Rent of instr'm'ts to Jan. 1	25 00

STATEMENT V—Continued.

Date.	No. of order.	To whom paid.	For what purpose.	Amount.
1884.				
Oct. 7	1489	James Kelley	Lawn-keeper for Sept	$35 00
	1490	Sam'l Findley	Adv. in Educational M'nt'ly	10 00
	1491	Herald and Presbyter	Advertising	15 12
8	1492	S. W. Robinson	Salary for Sept	225 00
11	1493	D. O'Brien	" "	70 00
	1494	A. H. Tuttle	" Oct	225 00
	1495	E. R. Kirk	17 days carp'try, n'w res'd'ce	48 85
17	1496	C. A. Roth	Florist, one month	40 00
18	1497	N. W. Lord	Salary for Oct	100 00
25	1498	S. A. Norton	" "	225 00
	1499	G. W. McCoard	" "	100 00
	1500	Cynthia U. Weld	" Sept. and Oct	240 00
29	1501	W. H. Scott	" Oct	275 00
30	1502	M. Dillon	" "	125 00
	1503	Alexis Cope	" "	100 00
	1504	R. W. McFarland	" "	225 00
Nov. 1	1505	C. N. Brown	" "	100 00
	1506	R. Jones & Son	Supplies Zoo. dep't	23 20
	1507	Door, Sash & Lumber Co.	Lumber for Hort. hall	6 36
	1508	H. A. Weber	Salary, Agr'l Chem	100 00
	1509	S. C. Derby	Salary for Oct	225 00
	1510	J. R. Smith	" "	225 00
	1511	C. W. Jackson & Son	Binding record book	1 00
	1512	M. N. Mix	President's clerk	12 50
	1513	A. H. Tuttle	Half-mo's salary	112 50
	1514	Edward Orton	Salary for Oct	225 00
	1515	E. H. Shoemaker & Sons	10 galls. oil Mech'l dep't	5 50
	1516	T. C. Mendenhall	Salary for Oct	225 00
	1517	F. J. Emmerick	Equip't Zoo. laboratory	40 00
	1518	J. E. Randall	Salary for October	50 00
	1519	W. T. Councilman	Equip't. Zoo. laboratory	20 00
	1520	Eimer & Amend	Supplies " "	26 64
6	1521	Henry S. Babbitt	Balance due on salary	150 00
7	1522	Woodr'w, Scott & McAl'st'r	Two tables	13 00
	1523	M. W. Lewis	Supplies Zoological dep't	3 40
	1524	Hayden & Baker	" Mech'l "	14 98
	1525	Chas. F. Scott	Material and lab'r, Hort. d'p't	16 21
	1526	W. R. Lazenby	Salary for October	200 00
	1527	David O'Brine	" " "	70 00
	1528	S. W. Robinson	" " "	225 00
	1529	N. S. Townshend	" " "	225 00
	1530	Lt. A. P. Blocksom	On account of salary	100 00
	1531	Alice Williams	Salary for Sept. and Oct	180 00
		Total disbursements		$46,620 43

Total receipts, as per Statement IV	$54,282 25
Total disbursements as above	46,620 43
Balance of cash in my hands this day	7,661 82

HENRY S. BABBITT,
Treasurer Ohio State University.

REPORT OF THE FINANCE COMMITTEE.

COLUMBUS, O., *November*, 1884.

To the Board of Trustees of the Ohio State University:

The undersigned, committee on finance, have examined the accounts and vouchers of the treasurer, and compared them with the records and vouchers in possession of the secretary, and we hereby certify that the report of the treasurer is correct.

PETER H. CLARK,
JAS. B. JAMISON,
T. J. GODFREY.
Finance Committee.

APPROPRIATIONS.

SECRETARY'S OFFICE, COLUMBUS, OHIO, *Novembrr* 13, 1884.

Henry S. Babbitt, Treasurer Ohio State University:

DEAR SIR: The following appropriations and authorized expenditures of the funds of the university have been made by the Board of Trustees for the fiscal year 1884:

The income of the endowment fund (so-called) as might be required for the support and maintenance of the university, subject to the limitations of the act of Congress:

November 14, 1883—	For	purchase of hat-racks and troughs (Chem. Lab.)	$50
"	"	Equipments, drum heads, etc	31
"	"	Department of Geology	100
15,	"	Department of Languages	50
"	"	Graded Galvanometers	185
"	"	Department of Zoology and Physiology	300
"	"	Expenses attending Farmers' Institutes	150
April 14, 1884,	"	Supplies Chemical Laboratory	400
"	"	Trouvelet's Astronomical Charts	75
June 17, 1884,	"	Department of Agriculture	300
"	"	Additional tables, Phys. and Zoo. Lab	300
"	"	Supplies, " " "	200
"	"	" Physical Department	400
"	"	" Chemical "	200
"	"	" Mechanical "	150
"	"	Department of Geology	50

Respectfully,

ALEXIS COPE,
Secretary.

LIST OF EMPLOYES AND COMPENSATION.

Section 7 of the organic act, passed by the Legislature of Ohio, May 1, 1878 requires a list of "the number of professors, officers, teachers and other employes and the position and compensation of each, to be reported annually.

The following is the list, with salaries attached, at this date:

William H. Scott,	President	$2,750
Edward Orton,	Professor	2,250
S. A. Norton,	"	2,250
Norton S. Townshend,	"	2,250
R. W. McFarland,	"	2,250
Albert H. Tuttle,	"	2,250
S. W. Robinson,	"	2,250
T. C. Mendenhall,	"	2,250
Nat. W. Lord,	" (conditional)	1,000
S. C. Derby,	"	2,250
Josiah R. Smith,	"	2,250
Wm. R. Lazenby,	" (conditional)	2,250
Henry A. Weber,	" (conditional)	2,000
Augustus P. Blocksom,	" (military)	500
Cynthia U. Weld,	Assistant Professor	1,200
Alice Williams,	Instructor	900
Alexis Cope,	Secretary	1,200
Fred. W. Prentiss,	Treasurer	400
Emma Lehner,	Assistant Librarian	125
M. N. Mix,	Clerk of President	125
David O'Brien,	Assistant in Chem. Department	700
Geo. W. McCoard,	" Math'l "	1,000
C. N. Brown,	" " "	1,000
J. E. Randall,	" Physical "	400
F. H. Eldridge		.....
H. H. Parry,	Janitor	1,200

RECORD OF PROCEEDINGS

OF THE BOARD OF TRUSTEES OF OHIO STATE UNIVERSITY.

COLUMBUS, OHIO, *November* 13, 1883.

Board met at 9 o'clock A. M.

Present—Messrs. Anderson, Cowgill, Ellis, Jamison, Miller and Wing.

The minutes of the previous meeting were read and approved.

The death of Professor John T. Short having been announced, the following preamble and resolutions were presented by Mr. Anderson, and unanimously adopted:

> **WHEREAS**, God, in his inscrutable wisdom, has seen fit to take from us Prof. John T. Short, late a member of the Faculty, whose untimely demise was no doubt partially due to his unremitting labors in behalf of the university; therefore, be it
>
> *Resolved*, That we take great pleasure in bearing testimony to the ability, learning, industry, zeal, fidelity, and uniform courtesy with which he discharged his professional duties.
>
> *Resolved*, That in Prof. Short's death, education has sustained a great and irreparable loss; literature is shorn of a shining ornament; the country deprived of a useful citizen; society, of a model christian gentleman; his wife and children, of an affectionate husband and father; and his intimate friends, of a congenial associate and true heart.
>
> *Resolved*, That we tender to the bereaved relatives of the deceased our condolence and heart-felt sympathy.
>
> *Resolved*, That we will attend, in a body, the obsequies to-day.

Mr. Sam. Kendrick being present, was asked to make a report to the Board of his work as agent in the discovery of Virginia military lands. Mr. Kendrick reported a number of new discoveries, which, with former ones previously reported, amounted to 50.

Mr. Godfrey, as chairman of the committee appointed at the last meeting of the board in relation to the claims of the heirs of Abram Styles, reported verbally that the committee had conferred fully with Mr. Kendrick; that Mr. Kendrick gives it as his opinion that the heirs of Styles have a valid claim, and propose to release for $3,000, and asked the board for instructions as to further action.

On motion of Mr. Cowgill, it was

Resolved, That the report of the committee be received, and that no compromise of the claims be made by this board.

Capt. C. A. Barton appeared before the board, and reported the collection of $3,369.64 paid into the treasury since his last report in March, 1883; expenses, $23.21; and his account for salary unpaid from March 15, 1883, to November 15, 1883, of $280.00. The report was received and ordered filed, and the expense and salary as stated, ordered paid.

Capt. Barton then exhibited to the board the book of plats and surveys and other documents connected with the Virginia Military Lands. These having been examined by the board, the committee charged at the last meeting of the board with the filing of said books and papers, reported as follows:

The committee appointed to ascertain and report upon what action, if any, is necessary to be taken by the Board with reference to filing papers, books, etc., in the office of the auditor of state, as required by section 8431, Revised Statutes, report that they have examined said section, and consulted with the auditor of state, and are of opinion that the statute does not require said filing until all of said lands are sold; that to file them now would cause great expense and inconvenience to the board and its agents, and recommend that no such filing be now made.

T. Ewing Miller,
T. J. Godfrey,
Committee.

On motion, the report of the committee was adopted.

On motion, Capt. Barton was continued as agent of the Board, at the salary of $25.00 per month, until the regular meeting of the Board in June next, and that said engagement may be sooner terminated by either party, if so desired.

The board then took a recess to attend the funeral of Prof. Short.

7:30 O'CLOCK P. M.

On reassembling the board listened to the reading of the reports of the President of the Faculty, the Librarian, and some of the department professors.

Mr. Harris, architect, called the attention of the board to the necessity of providing sewerage for the new horticultural and agricultural hall.

Prof. Mendenhall presented verbal requests for the appointment of

Charles F. Scott as assistant in physical laboratory, at a salary of $100.00 per annum, and for an order authorizing the payment of $200.00 per annum to Prof. F. H. Eldridge as assistant in physics.

Prof. Mendenhall also desired the privilege of purchasing two graded galvanometers for the measurement of electric currents, at a cost not exceeding $185.00 for both.

Pres. Scott referred to wants in several departments, and to the need of a desk, copy press, and book-rack in the President's office.

On motion of Mr. Jamison, Messrs. Godfrey, Anderson, and Cowgill were appointed a committee to examine the reports intended for publication, and to report upon the same during the session of the board.

Recess was taken until Wednesday, 9 o'clock A. M., Nov. 14, 1883.

Board met at the hour named in adjournment. All the members were present. The report of the executive committee was read and approved. The annual report of the board was read by the secretary, and the same referred to the committee on reports.

A recess was taken to allow the board an opportunity to visit the university and the finance and other committees time to perform the work assigned them.

WEDNESDAY EVENING, *November* 14, 1883.

Board met at 7:30 o'clock. All the members present.

On motion of Mr. Jamison, it was

Resolved*, That the matter of making application to the War Department for the detail of a professor of military science and tactics, be, and the same is hereby postponed until the January meeting of the board.

On the motion of Mr. Cowgill, that the salary of Miss Alice Williams be increased from $800 to $1,000 per year, beginning with the first of the present session, the ayes and nays were demanded. Messrs. Anderson, Cowgill, and Godfrey voted aye; Messrs. Ellis, Jamison, Miller, and Wing voted nay. The motion was lost.

The farm committee submitted their annual report, embracing the reports of the superintendent, and farm manager. The report was received and accepted.

Mr. Anderson moved

That professors Robinson and McFarland, and architect Harris be appointed a committee to examine into the safety of the cupola of the main building, and report

to the executive committee, who are hereby instructed to carry into effect the recommendations of said committee. Passed.

On motion, it was

Resolved, That the purchase of a desk, copy press, and book rack for the president's office be referred to the executive committee, with instructions to buy the same.

Ordered, That $50.00 be, and it is hereby appropriated to the department of chemistry for the purchase of strips for hat racks, galvanized iron troughs, shelving, and blinds.

Ordered, That $14.00 for equipment, $7.00 for drum head, and $10.00 per term for cleaning material be appropriated for the military department.

Ordered, That $100.00 be appropriated for the use of the department of geology.

The finance committee reported back the treasurer's annual report, having examined the same, and found it to be correct. The report was accepted.

The Board then adjourned to Thursday, Nov. 15th, 1883.

Board met pursuant to adjournment at 10 o'clock A. M. All the members present. On motion, it was

Resolved, That the request of Dr. Townshend concerning the purchase of tables for his department be referred to the executive committee.

Ordered, That $50.00 be and is hereby appropriated to the department of languages for the purchase of maps and other illustrated supplies.

Ordered, That a sum not exceeding $185.00 be, and is hereby appropriated for the purchase of two graded galvanometers for the department of physics.

Ordered, That $300.00 be, and is hereby appropriated for the department of physiology and zoölogy, and that hereafter a fee of $8.00 bo charged students in this department.

On motion, Mr. Chas. F. Scott was appointed assistant in the physical laboratory on a salary of $100.00 per annum, and the secretary was instructed to pay Prof. F. H. Eldridge his salary ($200 per annum) as assistant in the department of physics.

On motion, the request of Prof. Robinson, for $1,000.00 for the use of the mechanical department, was postponed until the next meeting of the board.

Mr. C. N. Brown was confirmed as assistant in mathematics. The report of the trustees was adopted and ordered printed.

On motion of Mr. Jamison, the executive committee was instructed to inquire into the propriety of increasing the insurance on the farm barns, and, if desirable, to make such increase.

On motion of Mr. Godfrey, the following preamble and resolutions were adopted:

WHEREAS, The contract made with Sam. Kendrick on the 31st day of August, 1882, ceased by the terms thereof on the 10th of the present month; therefore,

Resolved, That in the opinion of the board, said contract should not be renewed or extended as to reporting lands by him discovered, and the said Kendrick is hereby required to close up the business reported by him, by the second Tuesday of November, 1884.

The Board now proceeded to the election of officers for the ensuing year. The election being by ballot, Messrs. Ellis and Cowgill were appointed tellers.

Thomas J. Godfrey was elected President of the Board.

Lucius B. Wing was elected Vice President of the Board.

Albert Allen was elected Secretary of the Board.

Whereupon Mr. Allen presented the following communication:

COLUMBUS, OHIO, *November* 15th, 1883.

To the Board of Trustees of the Ohio State University:

GENTLEMEN: I have the honor of presenting you my resignation as secretary of your board, to take effect Dec. 31st, 1883. I am led to take this step by reason of enfeebled health growing out of serious nervous disorder of long standing, and from which I am advised to expect relief only by change of climate, and quitting all desk work.

Having many reasons to thank you for your repeated evidences of confidence, as testified by my election six times to this position, as well as in other ways, I beg you to accept personally and as a board, my warmest assurances of respect and esteem and my sincere desire for the lasting prosperty of the university.

Very respectfully, yours, &c.,

ALBERT ALLEN, *Secretary.*

After a few remarks by Mr. Allen explanatory of what might seem precipitate in presenting his resignation, the board took a recees until 2 o'clock P. M.

On re-assembling, the Board resumed consideration of the resignation of the secretary. On motion of Mr. Jamison, the resignation of Mr. Allen was accepted.

The following resolution was presented by Mr. Jamison, and unanimously adopted:

Resolved, That in accepting the resignation ot Mr. Albert Allen, as Secretary of the Board of Trustees of the Ohio State University, we desire to express our high appreciation of his services as an honest, efficient, and conscientious officer, and that he has performed his duties with entire satisfaction, and that we regret that his health compels him to discontinue the relations he has so long borne to this board, and hope that he may soon be restored to health.

On motion, the board proceeded to the election of a secretary and other officers of the board, with the following result:

For Secretary of the Board—Alexis Cope.
For Treasurer of the Board—Henry S. Babbitt.
For Executive Committee—T. Ewing Miller, Thomas A. Cowgill, L. B. Wing.
For Farm Committee—S. H. Ellis, L. B. Wing, James B. Jamison.
For Finance Committee—J. H. Anderson, Thomas J. Godfrey, James B. Jamison.
For Janitor—Michael Dillon.

Mr. Cowgill offered the following, which was adopted:

In view of the fact that the action of the board, in the employment of Capt. Barton as agent for military lands has lessened the clerical labor of the secretary's office.

Resolved, That the salary of the secretary for the ensuing year be fixed at $1,200.00.

The salary of the treasurer was continued at $400.00 per year with the usual bond.

Ordered, That the income of the endowment fund (so-called) for the ensuing year be, and is hereby appropriated for the support and maintenance of the University.

Ordered, That the sum of $150.00 be, and is hereby appropriated, for the payment of the university professors in attending farmers' institutes.

The committee on reports referred back to the board all such documents as they desire to appear in the annual report, and the board authorized the secretary to present, in form, the same to the governor.

(Signed) T. EWING MILLER, *President*.

COLUMBUS, O., *January* 17, 1884.

The Board met in regular session at 9 o'clock A. M., pursuant to call of the president, and was called to order by him. Present, all the members of the Board.

The proceedings of the last meeting of the board were read by the secretary and approved.

The proceedings of the executive committee, at its meeting of December 4th and 21st, 1883, were also read and approved.

Lieut. Louis A. Brandt, an applicant for the position of military instructor, appeared and was heard in reference to said application.

Senator O'Neill also appeared in behalf of Lieut. A. P. Blocksom, also an applicant for such position, and was heard by the board. Judge Johnson also spoke in behalf of Lieut. Blocksom. Mr. S. K. Donavin appeared and addressed the board in behalf of Lieut. H. O. Heistand.

President Godfrey presented the following communication from the adjutant-general of the U. S. army, in reference to the retention of Lieut. Ruhlen as military instructor at the university.

WAR DEPARTMENT, ADJUTANT-GENERAL'S OFFICE,
WASHINGTON, *December* 11, 1883.

Mr. T. J. Godfrey, President of the Board of Trustees,
Ohio State University, Celina, Ohio:

SIR: Referring to your letter of the 27th ultimo, requesting that the detail of 1st Lieut. George Ruhlen, 17th Infantry, at the Ohio State University, be extended two years from the date of expiration of his present term, I have the honor to inform you, that in the opinion of the Lieutenant-General commanding the army, the regulation which limits the period of an officer's detail at a college or university to three years, is a wise one, to which no exception should be made; and the Secretary of War concurs in this opinion.

Very respectfully, your obedient servant,
R. E. DRUM,
Adjutant-General.

Mr. Miller, chairman of the executive committee, reported to the Board that in accordance with a previous order of the Board, said committee had procured additional insurance on the barns at the university.

Mr. Miller also reported that he had ordered the powder stored at the university building to be removed to the U. S. Arsenal at the Barracks.

A communication was read from Prof. McFarland, in reference to purchase of a second-hand surveyor's compass, and also in reference to astronomical plates of M. Frouelet, which are placed for inspection at the university, inviting the board to examine them.

On motion of Mr. Miller, the executive committee was authorized to procure a second-hand surveyor's compass, as recommended by Prof. McFarland.

Mr. Miller read the following communication from Prof. Orton, and, on motion of Mr. Jamison, the request contained therein was granted:

OHIO GEOLOGICAL SURVEY,
COLUMBUS, O., *January* 4, 1884.

T. Ewing Miller, Esq.:

MY DEAR SIR: I am more tired of talking about my volume on Geology than the Board of Trustees are of hearing about it, but I have one more favor to ask in connection with it, viz., that I may be allowed to employ an assistant to take my section in Physical Geography for the present term, at my own expense. The state of the case is this: I have 600 pages already printed. I have about 300 more to prepare from my notes, including some of the most important portions of the field. I am exceedingly anxious to get the work all off my hands, and return, with undivided heart, to my college duties. The screen commission which I was forced into, cost me three months and more of time. By a strong effort I think I can get the volume ready by April next, which puts it as far behind my promises as the time spent in the service of the state in the screen commission. To finish thus soon, I shall need every hour that I can secure. I will carry on my college work, but the preparatory teaching I shall be glad to turn over to a competent assistant. Will you please advise me, at as early a date as possible, what your judgment is as to the action of the Board? President Scott understands the case and is not unfavorable to my request. I write slowly, and thus my work is lengthened out, though I have the facts all in hand ready to take their proper place. Perhaps you will feel that this case is really provided for by the action of the Board last scmmer in giving me one-half of last term to make up my screen commission work. This time I did not take, as I feared that it would disorganize my work for the year in college. I have not used, theretore, this measure of liberality.

Very respectfully,

EDWARD ORTON.

The president of the board then directed the secretary to read the applications and recommendations of the different applicants for the position of professor of military science and tactics at the university, pending which the board took a recess until 2 o'clock P. M.

COLUMBUS, O., *January* 17, 1884.

The Board met at 2 o'clock P. M. Present, all the members of the board. The reading of applications and recommendations, as above stated, was continued. The reading embraced all the applications and testimonials of the following-named applicants:

Lieut. J. J. O'Connell, 1st Infantry.
Lieut. Louis R. Brandt, 1st Infantry.
Lieut. H. O. Heistand, 11th Infantry.

Lieut. Samuel S. Pagne, 15th Infantry.
Lieut. Alfred C. Sharpe, 22nd Infantry.
Lieut. Benjamin Leavell.
Lieut. Augustus P. Blocksom, 6th Cavalry.

The name of Lieut. A. M. Ogle, 19th Infantry, having been presented to Judge Anderson, the judge produced a letter from Lieut. Ogle, asking that his name be withdrawn, for the reason that he might not be able to accept the detail.

After the reading there was a general discussion of the several recommendations, when, on motion, it was resolved to proceed at once to the election of a successor to Lieut. Ruhlen. A ballot was had, which resulted in the choice of Lieut. Augustus P. Blocksom, 6th Cavalry, and the President of the Board was instructed to write to the War Department requesting his detail.

President Scott presented the following resolution of the faculty of the university:

> *Resolved*, That the faculty recommend to the board of trustees that regular military drill be suspended during the winter term, and the professor of military science be allowed to make use of such part of the time now given to regular drill as he may consider desirable for the purpose of giving theoretical instruction in military science.

On motion of Mr. Jamison, the subject was referred to the faculty for their direction during the present term. President Scott called attention to the necessity of additional copies of the annual catalogue, and on motion of Mr. Cowgill, President Godfrey was instructed to offer and urge the passage, by the general assembly, of a joint resolution providing for 4,000 additional copies.

President Scott also suggested that the records of scholarship at the university are incomplete, and should be brought up regularly to date. The subject was referred to the president of the faculty, with authority to have the work done.

President Scott was also authorized to have additional shelving, needed in the vault at the university, made and placed therein.

The sub-committee, to which was referred the employment of an agricultural chemist, reported progress, and the subject was remanded to them for further consideration.

Mr. Jamison stated that the Jersey Cattle Breeders are to have a sale of cattle some time during the coming spring, and moved that the president of the board invite them to hold such sale at the university farm. Adopted.

On motion of Mr. Ellis, the Short Horn Cattle Association of Ohio was invited to hold its next annual meeting at the university, and the secretary was instructed to write to the Hon. T. C. Jones, President of said association, informing him of such action.

The board then proceeded in a body to call on Governor Hoadly.

Upon returning from the capitol, the board, on motion of Mr. Miller, adjourned.

(Signed) T. J. Godfrey, *President*.

Columbus, Ohio, *April* 14, 1884.

The board of trustees met at the office of the secretary pursuant to the call of the President. Present, Thos. J. Godfrey, President; T. Ewing Miller, and Thos. A. Cowgill. No quorum being present, the board adjourned to meet at 9 o'clock A. M. April 15, 1884.

April 15, 1884—9 o'clock A. M.

Board met pursuant to adjournment. Present, Thos. J. Godfrey, President; T. Ewing Miller, James B. Jamison, Thos. A. Cowgill, and J. H. Anderson.

The minutes of the previous meeting were read and approved, as were also the proceedings of the executive committee at its meetings of January 18th, February 12th, March 4th, and April 1st, 1884.

Mr. Cowgill introduced the following resolutions, which were unanimously adopted and ordered to be recorded in the proceedings of the board:

Whereas, The term of service, as trustee of the Ohio state university, of the Hon. T. Ewing Miller, late president of this board, will expire May 13, 1884; therefore, be it

Resolved, first, That the members of this board desire to place upon record their appreciation of the zeal and ability that have characterized Mr. Miller's services on behalf of the university during the six years of his trusteeship.

Second, That we have ever found him the faithful and unselfish friend of the university, fully comprehending its scope and purposes, and desirous, on all occasions, of promoting its highest interests.

Third, That we part with him, as an associate, with regret that we are to be deprived of his valuable counsel and co-operation in directing the institution, and that the university must lose the services of an official so zealous and devoted.

The board then proceeded to the university, where its session was resumed. At 12 o'clock, a short recess was taken to attend chapel ser-

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vices, at which President Godfrey made a brief address to the students.

After said recess the board again met in session at the office of the president of the faculty.

Present, Messrs. Godfrey, Anderson, Cowgill, and Jamison. On the representation of President Scott that it was necessary to divide the history class into two sections, on motion of Mr. Jamison, it was ordered that E. E. Sparks be employed as assistant teacher of said class during the present term, at a salary not to exceed fifty dollars.

On motion of Mr. Anderson, the president of the faculty and the secretary of the board were directed to purchase two or more plain tables for the rooms of Miss Weld and Miss Williams, and two dozen common chairs for general use.

Prof. Tuttle appeared before the board in reference to the erection of a new dwelling on the university grounds, and exhibited plans prepared by architect Hall. On motion of Mr. Cowgill, it was resolved to build another residence on the college grounds.

President Scott called attention to the application of students for advertisement in "Makio," and, on motion of Mr. Anderson, the secretary was authorized to have a half-page ad. inserted in each edition.

On motion of Mr. Jamison, the board ordered that Mr. Mix be paid twenty-five dollars additional compensation for services as clerk to the president of the faculty during the present term.

On motion of Mr. Cowgill, a vote of thanks was tendered to the Westinghouse Air Brake Co. for an automatic air-brake equipment for engine and passenger car, recently donated to the university, and constituting a valuable addition to the appliances of the laboratory in the mechanical department.

On motion of Mr. Anderson, four hundred dollars was appropriated for the purchase abroad of chemicals and supplies for the chemical laboratory, such appropriation being for the next collegiate year.

On motion of Mr. Cowgill, Prof. Robinson was instructed to have water and gas-pipes and fixtures in chemical laboratory properly repaired.

On motion of Mr. Jamison, Professors McFarland and Robinson were requested to investigate sources of water supply at the dormitories, and report to the board at its next sessson what changes are necessary to secure a supply of pure water at such buildings.

On motion of Mr. Jamison, President Scott was directed to obtain from each member of the faculty a list of books most desired for his department, with probable cost of each work; the books to be placed on said lists in the order desired.

Mr. Cowgill moved that $500.00 of the last annual appropriation for ordinary repairs be set apart for the use of the farm committee in repairing damage to levee by recent floods, and in repairing and changing the house of farm manager, and other farm buildings. Said motion was carried.

The Board visited the physical laboratory and heard Prof. Mendenhall's suggestions as to changes necessary to be made to make room for the gas engine and dynamo, and the executive committee was directed to make the necessary changes.

On motion of Mr. Anderson, the amount of $75.00 was appropriated for the purchase of Trouvelet's Astronomical Charts.

On motion of Mr. Jamison, the arrangements for the next commencement, so far as they are usually under the control of the Board, was referred to the executive committee, who were instructed to confer with the president of the faculty with reference thereto.

Hereupon the board took a recess until 8 o'clock P. M.

At 8 o'clock P. M. the board met at the office of the secretary. Present, T. J. Godfrey, President; T. Ewing Miller, Thos. A. Cowgill, Jas. B. Jamison and J. H. Anderson. A communication was received from Prof. Townshend, asking authority to represent the Board and university in a proposed visit to the agricultural and veterinary schools of Great Britain and other European countries, and, on motion, the secretary was directed to prepare and furnish to Dr. Townshend proper credentials for such purpose, the board incurring no pecuniary liability thereby.

The board considered the proposed compromise of a certain suit pending in the court of common pleas of Higland county, wherein the university is plaintiff, as recommended by Mr. Kendrick, and directed the secretary to inform Mr. Kendrick that it will accept twelve dollars per acre for the land in dispute, and is willing that judgment should be entered confirming the same, and securing to the defendants in such suit a title clear of all claims by the university against said lands.

Mr. T. Ewing Miller tendered his resignation as chairman of the executive committee, which was accepted, and on motion of Mr. Cowgill, Mr. J. H. Anderson was unanimously chosen by ballot as chairman of such committee. The resignation of Mr. Miller was in the words and figures following:

COLUMBUS, OHIO, *April* 15, 1884.

HON. THOS. J. GODFREY, *President Board of Trustees, O. S. U.:*

DEAR SIR: I hereby tender my resignation as a member of the executive committee of the board of trustees of Ohio state university.

Yours truly,
(Signed) T. EWING MILLER.

On motion of Mr. Cowgill, the board adjourned.

(Signed) T. J. GODFREY,
President.

COLUMBUS, OHIO, *May* 6, 1884.

The board met pursuant to the call of the President. Present, Thos. J. Godfrey, President; J. H. Anderson, T. Ewing Miller, Thos. A. Cowgill and S. H. Ellis, and was called to order by the president.

The President directed the secretary to read the minutes of the last meeting of the board, which were thereupon read and approved. The proceedings of the executive committee at their meeting April 14, 1884, were also read and approved.

Mr. Cowgill moved that the chairman of the executive committee and the secretary be instructed to employ a competent architect to submit a plan whereby the dwelling, occupied by Prof. Tuttle, can be enlarged at a cost not to exceed $1,500, and report to the full board at a future meeting; said motion, after discussion, was lost. The board, thereupon, on motion of Mr. Ellis, went into executive session to consider the rumors in circulation charging gross immoralities on the part of W. Brotherton, farm manager.

Pending inquiry as to the truth of such rumors, the board took a recess until 8 o'clock P. M.

The Board met again at 8 o'clock P. M., and further considered the said rumors affecting Mr. Brotherton. After further inquiry of persons believed to have knowledge of the facts, Mr. Cowgill offered the following resolution, which was unanimously adopted:

WHEREAS, It having come to the knowledge of the board, that grave accusations of immoral conduct, involving W. Brotherton, farm manager, are in circulation, and he having failed to appear before this board to answer thereto, after having been duly notified to so appear; therefore,

Resolved, That said Brotherton is hereby dismissed from his position as farm manager, and the chairman of the farm committee is directed to recommend to the board a suitable person to be appointed to the vacancy caused by said dismissal.

Thereupon the board adjourned without day.

(Signed) T. J. GODFREY,
President.

COLUMBUS, OHIO, *June* 16, 1884—8 P.M.

The board of trustees met in regular session.

Present, Thos. J. Godfrey, President; J. H. Anderson, Thos. A. Cowgill, James B. Jamison, Peter H. Clark, S. H. Ellis, L. B. Wing.

The minutes of the preceding meeting were read and approved. The report of the proceedings of the executive committee at their meetings of May 6th and June 3, 1884, was also read and approved. Professor McFarland appeared before the board, and was heard in reference to certain accounts for improvement of the campus, and for building a stable on his lot; also, in reference to assistants in his department.

Mr. Ellis, chairman of the farm committee, reported that in pursuance of the resolution of the board, adopted at their meeting May 6, 1884, he had placed Mr. John J. Janney in temporary charge of the university farm, which action was approved by the board.

On motion of Mr. Jamison, all applications and papers in reference to appointment of farm manager were referred to the farm committee.

On motion of Mr. Ellis, the matter of holding the commencement exercises outdoors was referred to Messrs. Godfrey, Anderson, Ellis, President Scott and Prof. McFarland to report to the board in the morning.

On motion of Mr. Cowgill, the board took a recess until Tuesday morning at 8 o'clock, at which hour the session would be resumed at the university.

JUNE 17, 1884.

The board resumed its session at the room of the president of the faculty at the university. Present, all the members of the board. The president called for the report of the committee appointed to consider the propriety of holding the commencement exercises outdoors.

The said committee reported in favor of holding such exercises in the grove in the south part of the campus.

On motion of Mr. Jamison, the report was adopted, and Prof. McFarland was directed to prepare the platform and seats for such exercises.

On motion of Mr. Ellis, Prof. McFarland was authorized to purchase the lumber in platform used for prize drill.

President Scott made a verbal statement about the probable income of the university for the coming year, and an estimate of the probable expenses, and then there was a general discussion of the subject by the members of the board.

Prof. Townshend was heard in relation to his proposed visit to Europe, the points he desired to visit, and the objects he expected to accomplish by such visit. He also requested a small appropriation to be used in purchasing abroad such articles as might be valuable for his department. He also stated that the faculty had adopted a short course for farmers, and recommended that such course be well advertised. On motion of Mr. Anderson, $300 was appropriated for the department of agriculture, and it was placed at the disposal of Prof. Townshend, to be used at his discretion in making purchases abroad.

Ordered, That Prof. Mendenhall be authorized to sell the small engine for which he has no use, and expend the proceeds of such sale for supplies for his department.

On the recommendation of the faculty, the following degrees were conferred:

Eli Osborn Ackerman, Columbus, Ohio, Degree C. E.
James Thomas Anderson, Columbus, Ohio, Degree A. B.
Helena Whiting Chamberlain, Amenia, New York, Degree A. B.
Clayton William De Lamatre, North Monroeville, Ohio, Degree A. B.
Edwin Stanton Howells, Massillon, Ohio, Degree M. E.
Jesse R. Lovejoy, Columbus, Ohio, Degree B. Sc.
Clinton Van Rensselaer Mead, Jefferson, Ohio, Degree B. Ph.
George Luton Morton, Chagrin Falls, Ohio, Mech. E.
Edward Orton, Jr., Columbus, Ohio, Degree M. E.
Annie Ware Sabine, " " A. B.
Edward Erie Sparks, " " A. B.
John Burket Wikoff, " " B. Ph.
George William Dun, " " B. Sc.

J. H. Anderson tendered his resignation as chairman of the finance committee, which was accepted, and the board thereupon proceeded to ballot for his successor, which resulted as follows:

Peter H. Clark, 6 votes.
Blank, 1 vote.

Mr. Clarke was thereupon declared duly elected chairman of the finance committee.

The matter of insurance on the university buildings was referred to the executive committee, with power to act.

The executive committee was, on motion of Mr. Ellis, authorized to make a contract for coal for the ensuing year.

On motion of Mr. Cowgill, the secretary was directed to forward to Mr. John Scott, of Ross county, a deed for a certain small tract of land in said county, to which he has made claim under section 3 of the act of April 3, 1873, and filed proper affidavits and proof in support of said claim.

Ordered, That the matter of providing a proper room for the meetings of the Engineering Association be referred to the executive committee and the president of the faculty.

The secretary read a report from Prof. Robinson on the condition of the main chimney over the boiler-house, and an estimate of the cost of repairing the same, and on motion of Mr. Clark, the executive committee were authorized to have the repairs made under the direction of Prof. Robinson.

The president of the board read a communication from the faculty in the words following, to wit:

OHIO STATE UNIVERSITY, COLUMBUS.

To the Board of Trustees of the Ohio State University:

GENTLEMEN: The closing term of the current year comes to its end with a state of feeling existing in the minds of some of the students of the university that is greatly to be regretted. As far as that feeling is due to the action of the faculty as a body, they have only to say that they have simply endeavored to do their duty, painful as it has been at times, with an eye single to the true interests of the students, and of the university. Much, however, of the present ill-feeling is due to what is, we are compelled with regret to believe, a more or less organized effort to embarrass and annoy the president of the university and to disparage his efficiency, and his fitness for the high position which he holds. The faculty of the university have no doubt that the trustees will appreciate such an attack at its true worth. They feel, however, that it will be an act of justice to President Scott, as well as a pleasure to themselves, to express personally to you their high appreciation of his character, and of his fitness for his position. They desire to express their sense of the fairness and kindness that has at all times characterized his dealings alike with students and with teachers of the university; of the sincerity and earnestness, and the consequent success of his efforts to understand and to adapt himself to the organization and usages of this institution; and of the sincere, unselfish and conscientious manner in which he has discharged every duty, pleasant or painful, that has devolved upon him.

(Signed)

EDWARD ORTON,
SIDNEY A. NORTON,
N. S. TOWNSHEND,
R. W. MCFARLAND,
ALBERT H. TUTTLE,
S. W. ROBINSON,
T. C. MENDENHALL,
N. W. LORD,
S C. DERBY,
WILLIAM R. LAZENBY,
JOSIAH R. SMITH,
GEORGE RUHLEN,
F. H. ELDRIDGE,
C. U. WELD,
A. K. WILLIAMS.

Mr. Cowgill moved that said communication be spread upon the minutes. On said motion, Mr. Anderson demanded the yeas and nays. On the call of the roll, Messrs. Cowgill, Clark, Jamison, Godfrey, Wing and Ellis voted aye; Mr. Anderson voted nay.

Mr. Anderson offered the following resolution:

Resolved, That sections 22 and 24 of the by-laws, rules and regulations of the board of trustees be amended to read as follows:

SEC. 22. Every draft upon the treasurer shall be drawn by the secretary and numbered in consecutive order, and shall be made payable to the order of the person in whose favor it is drawn, and shall specify on its face the purpose for which it is drawn; and the stub of each draft shall show the name of the payee, for what purpose it is made, and shall agree in number, date and amount with such draft; and such stubs shall be preserved by the secretary in book form.

SEC. 24. The treasurer, upon receiving any such draft, shall, upon payment thereof, cancel the same as paid bank checks are canceled, and enter in his books the number, date and amount of every such draft, and the name of the person to whom paid, and the said canceled drafts shall be carefully preserved by him as vouchers, for which he shall be credited in his settlements.

Said resolution, having received the unanimous vote of the board, was declared adopted, and the by-laws amended as therein provided.

On motion of Mr. Ellis, the following members of the faculty were re-elected at their former salaries: William H. Scott, Edward Orton, Sidney A. Norton, Norton S. Townshend, Robert W. McFarland, Albert H. Tuttle, Stillman W. Robinson, Thomas C. Mendenhall, Nathaniel W. Lord, Samuel C. Derby, Josiah R. Smith. Lieut. Augustus P. Blocksom was elected professor of Military Science and Tactics, and assistant professor of Mathematics, and William R. Lazenby, professor of Horticulture and Botany.

On motion of Mr. Clark, Prof. F. H. Eldridge was assigned to the department of mechanical engineering, as assistant professor in that department.

The president announced that the senior class desired to present a communication to the board, and, on motion of Mr. Ellis, the communication was received and read by a member of the class.

On motion of Mr. Jamison, the board took a recess until 8:30 o'clock P. M.

JUNE 17, 1884—8:30 P.M.

The board met at the office of the secretary. Present, all the members of the board, and on motion of Mr. Wing, adjourned to meet at the university at 8:30 A. M., June 18, 1884.

JUNE 18, 1884.

The board met at the room of the president of the faculty, pursuant to adjournment. Present, all the members of the board. After a short session, the board took a recess to attend the commencement exercises, and, upon re-assembling, adjourned to meet at the office of the secretary at 8 o'clock P. M.

JUNE 18, 1884—8 O'CLOCK P. M.

The board met at the office of the secretary pursuant to adjournment. Present, all the members of the board. Mr. Ellis offered the following resolution, which was unanimously adopted:

Resolved, That Prof. Henry A. Weber be elected to the chair of agricultural chemistry, and that the arrangements as to his compensation be referred to the farm committee for report.

Mr. Clark moved that Cynthia U. Weld be re-elected assistant professor of history and English language and literature. A ballot was ordered and resulted as follows:

Cynthia U. Weld, 5 votes.
A. H. Welch, 1 vote.
W. H. Scott, 1 vote.

Miss Weld was thereupon declared duly elected.

Alice K. Williams was re-elected instructor in the French and German languages.

Mr. Cowgill moved to increase the salary of Miss Williams to $1,000. Mr. Ellis moved to amend by substituting $900.

The yeas and nays were demanded on the amendment. The roll was called and resulted, yeas, Messrs. Jamison, Ellis, Clark, Cowgill, and Godfrey; nays, Messrs. Anderson and Wing.

The motion, as amended, was then adopted.

Mr. Ellis moved that the salary of Prof. Lazenby be referred to the farm committee, to report at the next meeting of the board. Adopted.

On motion of Mr. Cowgill, the compensation of Lieutenant Blocksom was referred to the executive committee, to report at a future meeting.

On motion of Mr. Wing, Geo. W. McCoard was appointed assistant in mathematics and English, at a salary of $1,000.

On motion of Mr. Jamison, C. N. Brown was continued as assistant in mathematics, at a salary of $1,000.

On motion of Mr. Clark, Prof. Derby was re-elected librarian.

On motion of Mr. Anderson, Prof. McFarland was re-elected bursar, and superintendent of the campus, at a salary of $100.

David O'Brine was re-elected assistant in the chemical laboratory, at a salary of $700.

On motion of Mr. Clark, the president of the faculty was authorized to employ a clerk at a salary of $125.00 a year until the November meeting.

Ordered, That $300.00 be appropriated for physiological and zoological departments for equipment of one dozen additional tables, and $200.00 for general supplies.

Ordered, That $400.00 be appropriated for supplies for the physical laboratory.

Ordered, That $200.00 be appropriated for supplies for the chemical laboratory.

Ordered, That $150.00 be appropriated for supplies for the mechanical department, and the repairs requested by Prof. Robinson be ordered at a cost not exceeding his estimate of $40.00.

Ordered, That $50.00 be appropriated for the department of geology.

On motion of Mr. Ellis, Messrs. Godfrey, Clark, and Wing, and President Scott, and Prof. Derby were appointed a committee to prepare an estimate of the probable cost of cases, shelving and furniture for the library, removing the old books and cataloguing the entire collection, and that the above-named members of the board shall determine and designate the amount to be expended for the purposes aforesaid, the amount to be used for the purchase of miscellaneous books, and also the amount to be used for purchasing scientific works, and to apportion the latter sum among the several departments, and that thereupon President Scott and Prof. Derby shall purchase said books under regulations to be prescribed by the above committee.

On motion of Mr. Jamison, the appointment of a florist and equipment of the horticultural and agricultural hall were referred to the executive committee with power to act. The farm committee reported that they had arranged with Prof. Weber to accept the position of agricultural chemist to which he had been elected, at a salary of $2,000, including such sums as he may receive from the agricultural experiment station, and that in addition to his professional duties he would take charge of the farm as farm manager, his term to begin at the next term of the university; and in case he should not assume the duties of farm manager, at the beginning of his term, the compensation of such farm manager to be deducted from his salary.

Said report was adopted, and the arrangement of Prof. Weber's compensation and employment confirmed.

Mr. Cowgill offered the following resolution, which was adopted:

Resolved, That President Scott be requested to furnish a copy his inaugural address for publication in the annual report for 1884.

Mr. Anderson offered the following preamble and resolution, which was unanimously adopted:

WHEREAS, The War Department has refused the earnest wish of this board expressed some months since for the re-detail of Lieutenant George Ruhlen, 17th Infantry, U. S. A., as professor of military science and tactics at the ohio state university; and

WHEREAS, The term of three years for which he was originally detailed has expired; now, therefore, be it

Resolved, That we part with Professor Ruhlen and lose his valuable services with regret. We have found him an accomplished gentleman, a ripe scholar, and an excellent instructor, whether in the class-room or in charge of the battalion. While modest and unobtrusive, his work has been so thorough and satisfactory, that it has left an indelible impression on the minds of all the cadets. He is held in high esteem by his colleagues, and is universally beloved by the students.

(Signed) T. J. GODFREY, *President*.

INAUGURAL ADDRESS OF PRESIDENT WM. H. SCOTT.

[Delivered at the Eleventh Commencement of Ohio State University, June 18, 1884.]

The subject naturally suggested by this occasion is the university itself, and the kind of education which it is designed to promote. Here is an institution of recent origin but of vigorous growth, resting on a solid financial foundation, and having a history which, though brief, gives promise of an illustrious future.

The paramount question is, what shall that future be? On what principles shall it be founded? By what policy shall it be guided? To what ends shall it be directed? In order to answer these questions we must go back to the beginning. In determining what use should be made of an endowment, it is necessary to look to the terms of its creation. The intent of the donor gives initial direction to the grant, and must be respected in all the subsequent proceedings of those who control it. That intent is to be sought in his own language used in conveying the gift.

In the case of the present endowment the government of the United States is the donor, and congress has stated the purpose of the donation in these words:

"That all moneys derived from the sale of the lands aforesaid, by the state, to which the lands are apportioned, and from the sales of the land-scrip hereinbefore provided for, shall be invested in stocks of the United States, or some other safe stocks, yielding not less than five per centum of the par value of said stocks, and that the moneys so invested shall constitute a perpetual fund; the capital of which shall remain forever undiminished (except so far as may be provided by section fifth of this act), and the interest of which shall be inviolably appropriated by each state which may take and claim the benefit of this act to the endowment, support and maintenance of at least one college, where the leading objects shall be, without excluding other scientific and classical studies, and inducing military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." (U. S. Statutes, Vol. 61, Stat. 7, Sec. 4.)

It does not require a very close scrutiny of this language to discover that it is not the statement of a single mind setting forth a single untrammeled purpose. It is the welding of two opposite views. Minds that were agreed on the general question of appropriating public lands for education, were at variance as to the kind of education for which it should be appropriated. The result was a compromise—a compromise which consisted not in abandoning the extremes for intermediate ground, but in a union of the extremes.

The proposition that forms the basis of the complete statement which I have quoted, is that "the leading objects shall be to teach such branches of learning as are related to agriculture and the mechanic arts." I have heard it said with a sneer that the farmer's son does not need a college to teach him how to hold a plow; that this is something which he can learn best at home on the farm. This shows a wide misapprehension or else a gross perversion of the meaning of the statute. It does not propose that the farmer's son shall be taught to hold the plow. He is to be taught "such *branches of learning as are related to* agriculture." No more does the law propose that the mechanic arts shall be taught, but "*such branches of learning as are related to* the mechanic arts." So far as the practice of the art in either case may be necessary to make plain that branch of learning, it should be taught; but the primary object contemplated by the law is the teaching of the principles, the theory, the science, which underlie the successful practice of the art. The art can be learned elsewhere, but the science which will dignify it and transfuse it with intelligence can be most successfully pursued at a school which provides teachers and equipment for such instruction. And when you come to this broader view, what science can you exclude? Chemistry and physiology, mineralogy and geology, physics and mechanics, all would admit, and the list might be easily extended.

But fix the limit where you will the designation of this class of studies is not exclusive of others. Military science is expressly included. Furthermore, it is expressly forbidden that other scientific and classical studies shall be excluded. "Other scientific" studies must mean such as are *not* related to agriculture and the mechanic arts, if there are any such. Mathematics, logic, political science, mental and moral science, seem to have an indisputable claim.

Classical studies are not to be excluded. It is universally supposed, so far as I know, that the term classical studies here means the Greek and Latin languages and their literature; and if these are admitted, surely no one will object to the admission of the French, the German, and the English languages.

It is the insertion of the phrase, "without excluding other scientific and classical studies," that marks the influence of a theory of education different from that which fashioned the other portions of the statute. It indicates a purpose at once definite and decided to save the colleges, which should be established under this grant, from the necessity of confining themselves to narrow and purely utilitarian ends and to allow them scope for an enlarged and enlightened policy.

On the other hand, "the *leading* object shall be to teach such branches of learning as are related to agriculture and the mechanic arts." They are to stand first. They are entitled to the largest share of the proceeds of this fund and to the largest influence in shaping the courses of study and the general policy of the institution. This is the requirement of the law. And by the State of Ohio this requirement has not only been faithfully, but liberally and amply, fulfilled. Of eight courses of study, including the short agricultural course recently adopted, but one requires Greek and but two require Latin. Five require German and five require French, not as accomplishments but as working tools, as instruments of scientific knowledge. But three of the eight courses require mental science. But two require logic or English literature. One course is made up almost wholly of the natural and physical sciences, many of which are elective. The rest are devoted to agricultural, veterinary, mechanical, mining, and civil engineering courses, with such an admixture of mathematics, language, and general science as is necessary to render them broad and effective. Of the sixteen teachers who constitute the faculty, fourteen give instruction in subjects which, I think, every intelligent person would place in a curriculum for industrial education. But it must be remembered that a large part of the ground covered by a course of practical and by one of liberal study, is common to both.

When we consider the equipment, we find a still greater preponderance on the same side. At least a hundred thousand dollars have been expended in laboratories and museums, to say nothing of the annual appropriations for assistance and supplies. These appropriations amounted during the last year alone to nearly seven thousand dollars, which is twice as much as has been given for similar purposes to the departments of language, history, and philosophy, since the institution began.

I mention these facts to remove a false impression which has been entertained by some, and to show with what scrupulous fidelity the trustees have adhered to the letter of the law, by making it the leading object of the institution to teach such branches of learning as are related to agriculture and the mechanic arts.

But let us examine still further the declaration of congress respecting the purposes of the endowment. It is "to promote the education of the industrial classes." Who are the industrial classes? Those who seek an education are, generally speaking, still young. They have not yet become identified, by a choice of their own, with any class of society. Shall they be classed according to the occupation of their parents, or according to their expectations? according to the class from which they come, or according to the class which they are to enter? If those alone, who have come to the university from an industrial class, are to be regarded as belonging to such a class, the way is yet open for every kind of instruction; for many such students wish to enter professional life, and as a preparation for it they wish to pursue classical and philosophical studies. On what ground can they be refused? Belonging, by the hypothesis, to the industrial classes, they are entitled to the benefits which they seek.

But if it be said that those only belong to the industrial classes who expect to enter upon some industrial pursuit on leaving the university, what, in that case, becomes of the closing words of the section—"in the several pursuits and *professions* of life? Nothing can be clearer than that the students of the university were to find here the means of preparing themselves for entering on any of the leading occupations in which men engage.

Who are the industrial classes? Let us seek an answer in another form. At this point I can do no better than express my hearty endorsement of the opinion so well expressed by the first president of the university.

"If it be asked," said he in his inaugural address, "who are the industrial classes of American society, I answer, the great mass of the American people. * * * * Certainly the term can not be limited to the classes who live by manual labor. The manufacturer, the builder, the engineer, the farmer, who provide and control the manual labor of scores of hundreds, without being able to put their own hands to plow or plane or spindle, belong by the best of right to the industrial classes." With equal reason, I would add, the term should include the classes who are engaged in traffic and transportation. But suppose that the physician's or the lawyer's son desires such an education as the institution provides, who is there that would deny him the right to take his place by the side of the artisan's son and obtain his desire?

What kind of education did congress intend should be obtained here? The law contains a yet more explicit answer. It is to be "a liberal and practical education." It must be practical—that is, it must be such an education as can be made use of. It must keep hold on reality and look to some useful end. But at the same time it must be liberal. It must not merely deepen the rut in which the student's mind already runs. It is not to fetter his thoughts within the narrow limits of a trade. It is not to fix his eyes forever on the earth, so that he shall never be able to take one wide look into the great world around him, or breathe one aspiration toward the glorious heaven above him. The education given here is to be "liberal". It is to be free, enlightened, broad. It is to emancipate and not to bind, to elevate and not to degrade.

This liberal and practical education, it is further declared, is to be "in the several pursuits and professions of life." The youth who come here are not only to find a door wide open for their entrance, but to have before them more than one way of exit. When the farmer's son comes, he meets a cordial welcome. If he and his father choose, he can enter a course of education for the farm. But if they choose otherwise, here are other paths leading to other pursuits. He may become a civil engineer or a mechanical engineer or a mining engineer. Here are the courses of study, and here are teachers and apparatus to guide and help him.

But what of the boy who comes from the farm or the shop with the flush of genius on his brow, or the stirrings of a great ambition in his soul? Shall we be compelled to say to him, "We have no place for such as you," and to turn him disappointed from the threshold of his hopes? Surely, the great country whose bounty created this endowment, never meant it to be dealt out so sparingly that her most gifted children should have no share in it. There are, as congress distinctly indicated there should be, gateways out to the professions as well as the pursuits of life. If it were otherwise, the tendency of the grant would be to render class distinctions hereditary, to restrict the son of the farmer, or the artisan to his father's pursuit, and thus to create castes, the bane of freedom, and one of the very last results to which education ought ever to be made to contribute.

It appears, then, that a magnanimous purpose pervades the congressional act under which this university has been established. That act contemplated the development of institutions of large and catholic purpose, which should be to the great mass of the people avenues to knowledge and training, to power, position and influence; so that every youth who has the soul to aspire and to strive should find close at hand and freely offered, the means to realize his aims.

Freedom in the application of the endowment is provided for in still another way. The application is to be made "in such a manner as the legislatures of the states may respectively prescribe." This language is evidently designed to anticipate differences in the circumstances of the different states, such as natural situation and advantages, and the kind and extent of the provision for advanced education already existing. In a word, the institutions were left free to adapt themselves to their environment. Florida would not need the same kind of a university as Iowa, or Maine the same kind as Mississippi. Massachusetts with her Harvard, Connecticut with her Yale, New Jersey with her Princeton, Michigan with her state university, would not have the same wants to meet as West Virginia, or Minnesota, or Ohio. Hence, it was left for the states themselves to determine the particular character of the institutions they would create. Wide differences have been the result. Some have established agricultural colleges, some agricultural and mechanical colleges, some industrial colleges. Some have established independent colleges, some have combined the grant with other endowments. That all these various forms are within the purview of the foundation, appears from the fact that congress has never indicated the slightest dissatisfaction with the plan adopted by any state.

The first determination of Ohio was "to establish and maintain an agricultural and mechanical college." But after eight years, affording time for experience, for observation, and for mature reflection, the legislature decided that the name of the institution should be changed, and that it should "be known and designated hereafter as the Ohio State University." This act distinctly announced the purpose of the state to avail itself of the liberty allowed by congress to found a school of broader scope and of higher rank than was at first intended. The change of name thus deliberately made means that here may be gathered the agencies for educating the youth of the state in the most liberal and thorough manner for all the pursuits and professions of life. It is a great meaning and a great purpose.

As to the scope of the institution, then, some points are well settled. It is to be, and of right may be, a university. The common misuse of this word makes it necessary to consider its true definition. If we look to its etymology, we find a single suggestion, and that is one of extent. According to this, a university is a place of universal study, or, as Webster defines it, "a universal school, in which are taught all branches of learning." Cardinal Newman calls it, "a place of teaching universal knowledge." Such a conception was at first ideal. The past, however, shows a gradual approach toward it, and the indications of the present point to a more rapid and steady approach. If it should never be realized, it nevertheless suggests the chief greatness in every great thing—the pattern showed in the mount, which is the guide and inspiration in all true workmanship.

The actual university differs in different countries. According to its genius and its wants, each country has developed its own peculiar type. The English, the Scotch, and the German universities present many points of diversity. Owing to the character of our social and political institutions, and the conditions and demands of life among us, the American university will doubtless be unlike all others. All such projects as that lately proposed for planting a German university on our soil, must prove futile, and it is not a matter of surprise that the enterprise met with but little encouragement.

The college has existed in this country from the earliest period of our history. It was born when as yet there was scarcely enough, either of clothing to protect it from the elements, or of food to nourish its life. But it survived all the privations and hardships of its infancy, and has grown to a vigorous manhood. The work which it has done is of inestimable value, and it must remain an indispensable factor in our civilization.

But for many years a series of changes has been going on within our foremost colleges by which they have taken on some of the characteristic features of the university. What form they will finally assume depends mainly on the modifying influences of American life. An institution is a growth, and must conform to the conditions under which it is developed. It is the organic product of many agencies. It results from the co-operation of a thousand elements and a thousand forces. The individual, society, the state, and that subtle power pervading all which we call public sentiment, are a few of the sources that contribute to the new creation. To begin with, therefore, there must be a central, persistent life—a power that shall continue through all changes, and shall permeate all the materials, organizing them into unity.

The institutions which are thus in the natural course of things developing within the American college, are distinguished from the earlier college: 1, by a wider range of studies; 2, by the freedom of choice allowed among studies; 3, by advanced courses of study; 4, by different methods of instruction.

A wide range of subjects is made possible in two ways: First, by a higher standard of admission, which secures students who have already disposed of much that was formerly included in the college course and who are qualified to do a greater quantity of work; and secondly, by the introduction of electives, which offers to the student alternative courses.

By the same means it is able to perform a higher grade of work. The student, having already pursued in his preparatory course, much that was, a generation or two ago, included in the college course, is able to carry his studies to a higher limit. He is especially aided in this, also by being allowed, at a certain stage of advancement, to omit some kinds of study that he may attain a higher degree of proficiency in others. At Harvard, for example, nothing is prescribed after the freshman year, except rhetoric in the sophomore year and certain written exercises in the sophomore and junior years*. For the rest each student is required to choose for himself four courses from the wide range of electives. There are eight elective courses in physics, nine in chemistry, ten in mathematics, twelve in Latin, thirteen in Greek, seventeen in history, eleven in philosophy, and corresponding numbers in other departments. By selecting his studies chiefly from any one department, the student will in time be able to complete all the courses which it offers, and in this way obtain a very thorough and comprehensive acquaintance with it. But if, instead of restricting himself to special lines of work, he wishes to pursue the ordinary collegiate course, he can choose his studies with this view, and graduate with a general knowledge of many subjects.

Another characteristic of the university, which has been introduced to some extent into the college, is its method of instruction. For elementary teaching the text-book must be the main dependence. The beginner must have the matter which is given him for mastery presented in such a form that he can peruse it easily, repeatedly, and scrutinously. For this nothing equals the printed book. Type is familiar and easy. The book, if judiciously selected, contains the essentials of its subject clearly stated and logically arranged. With this in hand the student can read, review, connect, compare, and perfect his knowledge of rudiments. But when a foundation has thus been laid, the superstructure should be built by a different method. The capable instructor, no longer confining himself to the task of testing the student's acquaintance with the text and of illuminating its dark places, will give to his class the fruits of his own research and reflection. He will assign original work involving research and reflection on their part, thus forming in them habits of independent investigation and teaching them rational and approved methods. In brief, investigation becomes the methods of instruction, and, as the means of conducting it, the text-book is superseded by the library and the laboratory.

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*Since this was written the whole course has been made elective.

What has the Ohio State University done toward realizing these forms of university life? In accordance with the general purpose of the act which gave to the institution its present name, it has been divided into four schools or colleges,—the school of science, the school of engineering, the school of agriculture, and the school of arts and philosophy.

The course of study in the school of science offers opportunity either for a comprehensive survey of the field of science or for prolonged work in special lines. In the freshman year all the studies are required; in the sophomore year two-thirds of the work are required and one-third is elective; while in the junior and senior years one-third is required and two-thirds are elective. A choice of the same science is possible for two, or even three years. In chemistry or anatomy and physiology, which are required throughout the freshman year, a student may do even four years of consecutive work. The subdivision into departments is so complete, that each professor is able, in nearly all cases, to concentrate his time and labor on a single science, which makes it possible to attain a very high degree of efficiency. The laboratories are kept well up with the latest advances in science and afford the means for extended study and research.

The school of engineering embraces three departments, civil, mechanical, and mining. Each of these has its separate instructors and equipment, and provides for a distinct course of study, which extends through three years, following the scientific course of the freshman year, and leads to a corresponding degree.

For the school of agriculture two courses of study have been laid down, a longer one leading to the degree of bachelor of agriculture, and a shorter one leading to no degree, but within a space of two years embracing nearly all of the purely agricultural and veterinary work, together with several elementary sciences and some training in the mechanical laboratory. One or two additions ought to be made in this school, and I but speak the general sentiment of those in authority when I say that there is an earnest purpose to make them at the earliest possible date. An agricultural chemist* and an entomologist would not only strengthen the school of agriculture, but would perform important services directly beneficial to the agricultural interests of the state. By their investigations, by lectures, and by the publication of bulletins and reports, they would be able to disseminate much useful information and to awaken a general interest. But the leading object in having such men in the university would, of course, be to give instruction; and there would annually be sent forth a body of young men to carry the influence of inquiry and intelligence abroad in the state.

The university includes in its curricula language, literature, and political, mental and moral science. The introduction of these subjects has been more recent, and although they are taught as fully as in other colleges of the state, yet, compared with other departments of the institution, the provision made for them is very inadequate. They ought to be strongly reinforced.

The study of language and literature unlocks the treasures of knowledge belonging to every age and to every division of the globe. In political and social science we study the progress of the race as embodied in institutions. Institutions are the products of advancing mind; they incorporate and preserve the fruits of the thought and conflict of all past time. Whatever has been wrought, whatever has been attained, is here assorted and compacted for us and for our children. Government with its legislature, its judiciary, its executive, and its multiplied minor distributions of power; property, insurance, and the bank; the school, the college, the church, the public charity; marriage and the home; — these are examples of the institutions of society, and they make it plain how the priceless inheritance that has descended to us from our fathers is bound up in them. It is by these that the race has then been raised from barbarism, and without them it would speedily fall back into barbarism.

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*Prof. H. A. Weber has since been elected to the chair of agricultural chemistry

In philosophy we study the universal. It is the office of intelligence to discover the whole in the part, the class in the individual, the law in the fact. The student in his attitude of observer, should train himself to look beyond the event to its relations with other events, and beyond relations to the principle that governs them. To fail in this is to miss the meaning of the universe. To gain such insight is to solve, so far as man may solve, the eternal enigma of existence.

The opinion has been expressed that industrial education cannot go on successfully with classical or philosophical education; that they are so diverse in spirit and aim as to render harmonious co-operation impossible. I maintain, on the contrary, that they not only can go on together, but ought to go on together. Their harmonious co-operation is not only possible, but desirable, nay, in a republican society it is of the highest importance.[*]

Each individual ought to obtain, in the course of his education, both theoretical and practical training. By the one his higher faculties will be unfolded, his knowledge will be made comprehensive, his views will be enlightened, his ideals elevated, his tastes refined, and his mental and moral nature deepened and quickened. By the other, his grasp of facts will be strengthened and his modes of thought will acquire firmness and vigor. He is poorly educated who has never looked into the rich treasuries of history and literature, who has learned nothing of social principles and laws, and who, above all, has remained ignorant of the powers and processes of his own mind. But no less is it true that he is poorly educated who has read theories and heard lectures, but has brought nothing to the test of his own senses. "Seeing is believing." For most men seeing is indispensable to clear and definite believing. Experience, dear as may be the school she keeps, must have a share in every thorough or useful education. If a young man returns from the university to the farm—and I hope that many will do so—let him carry with him some knowledge of himself as a rational and moral being, and some illumination from the firmament of thought. If he is to enter a profession, let him take with him a close, practical, hand-to-hand sense of things. A human being, simply because he is a human being, ought to have the whole range of his faculties developed and trained. Every key of his soul ought to be so tuned, that under the sweep of the hand of life all its chords will respond in unison, and the full diapason will pour forth its music of sweetness and power. The age demands as much. It insists that its educated men shall be well equipped, and he who is best equipped soonest finds his place and most completely fills it.

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[*] There is nothing new in the attempt to combine learning and working in the same life. It was once the rule in the history of education, while juvenile education, down to the era of the reformation, was the exception. The two pursuits are not in each other's way; each may give new zest and interest to the other. Nor need the workingman's studies be confined to branches which will be of direct and practical use in his work. The experiment of the workingmen's colleges in England shows that this class are fully able to receive and appreciate what is, in all essential respects, a liberal education, and that not with a view of leaving their own class to enter what is socially construed as a higher, but to remain in it as its educators and leaders. [Thompson's Social Science and National Economy, capter 18, § 846.] In the college of agriculture the students should receive at once the liberal culture that will fit them to associate on terms of equality with educated men, and the special scientific and technical training that will enable them to practice a scientific agriculture. [Same § 841,]

But even for the student who chooses a specialty it is best to pursue it where many other things are taught. The varied associations of the place will keep alive in him the consciousness of other departments of thought and effort, and thus preserve him from narrowness and bigotry. The contact with minds of other moulds, and the spectacle of other intellectual pursuits prosecuted with purpose and zeal, will enlarge his sympathies and elevate his aims.*

Thus educated, he will assume his place in active life not to depreciate the labors of other men, and to foment jealousies and hatreds against other classes, but to join with all in the world's common work, and to cement rather than dissolve the bonds which unite man with man. Society differentiates. The highest form of society is the completest unity amid the widest diversity. Guizot has called attention to the fact that the most essential distinction between ancient life and modern life, and between the savage life and the civilized life, is to be found in the simplicity, the oneness, of employment, of condition, and of habits of thought in ancient and savage life, compared with the marvelous variety and complexity of modern civilized life. And this characteristic of our present society is destined to a much greater development. New inventions, new industries, and hence new interests and new combinations of interest are constantly arising. All these—those that already exist, and those that shall be created hereafter—must dwell side by side in society. Not only must they dwell side by side, but they must maintain a constant intercourse and interdependence. The peace of society and the progress of civilization depend on the right adjustment of class to class, of trade to trade, of man to man.

That educated young men and women may be prepared to meet the complicated conditions of modern life, they should have some previous experience of a similar situation. The student should realize something of that multiformity of power which is at work in society. He should experience something of that attrition of opinion, and that combined movement of mind with mind and of department with department, which must constitute so large a part of his experience in the future.

I do not mean to imply that every student should receive the same kind of education. The varied demands of society require that men should be fitted for many kinds of service, and that varied facilities should be afforded. This is now done to a great extent in different schools. The college of arts gives one kind of training, the polytechnic school another, the normal school another, the agricultural school another. But the reasons which I have already assigned make it apparent, I think, that it would be far better for the student that there should be a union of these schools in one place and under one management.

There are other reasons no less cogent. Such a university may be vindicated on the ground of economy. The various departments will reinforce each other not only intellectually but financially. For example, the professors of the physical sciences can meet the requirements of the students in every course. The student in arts or philosophy can take his chemistry, his physics, his geology, under the same professors and in the same lecture-rooms and laboratories with the student in science or engineering. Larger buildings and more assistants may be necessary, but these can be provided at far less cost than entire departments can be duplicated in different places.

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*The ignorance and prejudices that come from isolation are worn away in the conflict of the forms of culture. We learn to think the thought, to hope the hope, of mankind. Former times spoke of the dawn of civilization in some one land; we live in the morning of the world. [Bancroft's History Const. U. S., Vol. 1., p. 5.]

Still another argument in favor of the policy of combination is to be drawn from the healthful stimulus that it creates for the instructor as well as the student. In a body of strong men each will press his work with more vigor, will study with more perseverance, and will teach with more enthusiasm, because he is surrounded by other men who are putting forth their best exertions. Each will also learn from the wisdom and practice of the others. The value of all this alert, vital activity upon the value of the instruction is incalculable. It will open a fountain of inspiration and power, at which a multitude of youth will annually drink and from which streams of invigorating virtue will constantly flow forth.

Shall not Ohio, so central in her position, so rich in her resources, so liberal in her charity, make her capital the seat of a university whose intellectual greatness shall be one of her chief honors? Nothing is more worthy of her fostering care. Nothing can do more to insure her stability and strength. Nothing can give her a more just and honorable renown.

Let us who are gathered here this day, dedicate ourselves to the fulfillment of these great hopes and to the building up, on this central spot, of a university whose light shall shine afar and whose beneficient power shall be felt by every class of society and in every part of the land.

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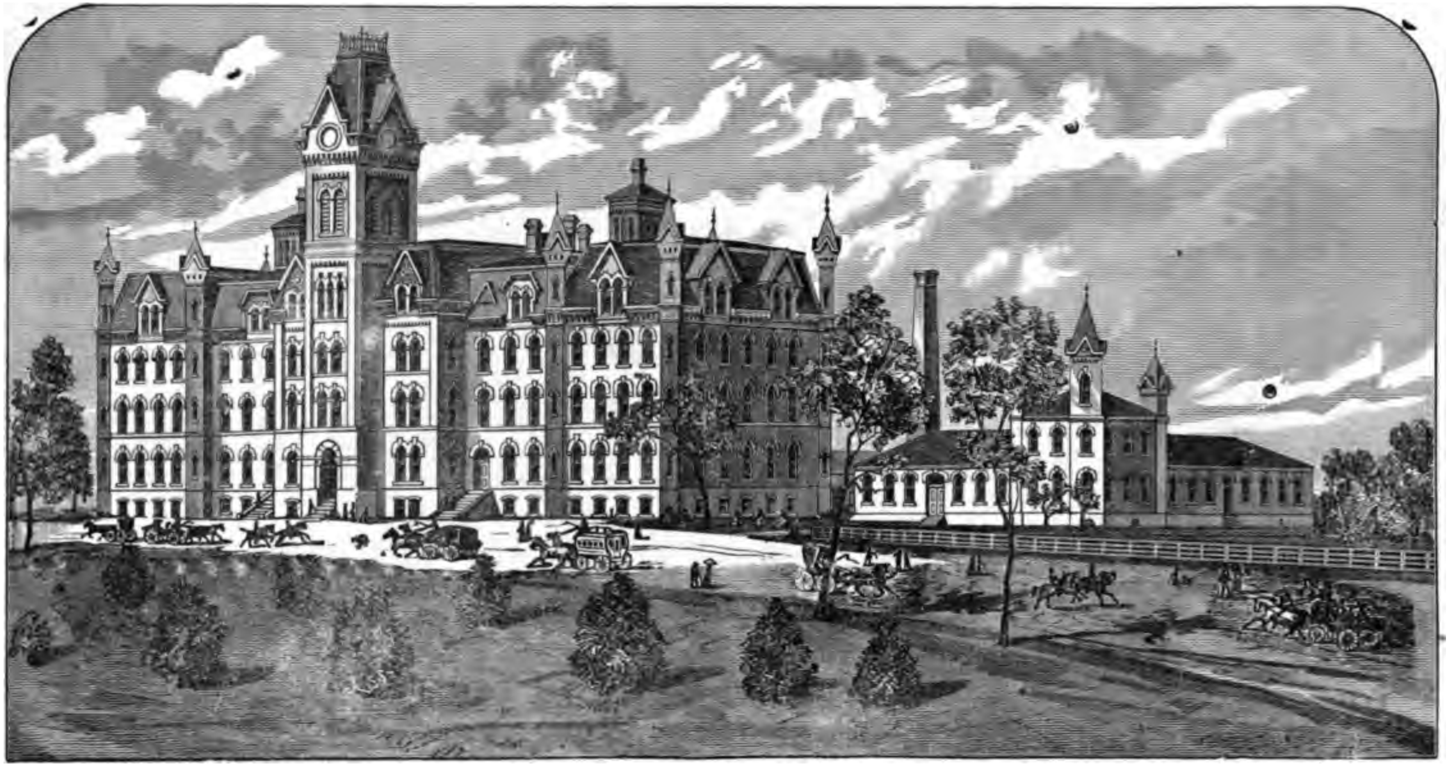

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OF THE

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1884.

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UNIVERSITY CALENDAR.

1884.		
November 27 and 28,	Thursday and Friday,	Thanksgiving Holidays.
December 18,	Thursday,	Term Examinations begin.
December 24,	Wednesday,	Fall Term ends.
1885.		
January 8,	Thursday,	Winter Term begins.
March 27,	Friday,	Term Examinations begin.
April 1,	Wednesday,	Winter Term ends.
April 9,	Thursday,	Spring Term begins.
May 24,	Saturday,	Senior Examinations end.
June 17,	Wednesday,	Term Examinations begin.
June 21,	Sunday,	Baccalaureate.
June 22 and 23,	Monday and Tuesday,	Entrance Examinations.
		Commencement of Literary Societies.
June 23,	Tuesday,	Class-Day Exercises.
June 24,	Wednesday,	Commencement.
September 15 and 16,	Tuesday and Wednesday,	Entrance Examinations.
September 17,	Thursday,	Registration Day.

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STILLMAN W. ROBINSON, C. E.,
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THOMAS C. MENDENHALL, PH. D.,
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NATHANIEL W. LORD, E. M.,
Professor of Mining and Metallurgy, **Room 16, Hayden Block, East Broad street.**

SAMUEL C. DERBY, A. M.,
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WILLIAM R. LAZENBY, AG. B.,
Professor of Horticulture and Botany, **West Ninth avenue.**

JOSIAH R. SMITH, A. M.,
Professor of the Greek Language, **Indianola Place.**

HENRY A. WEBER, Ph. D.,

Professor of Agricultural Chemistry, University Grounds.

AUGUSTUS P. BLOCKSOM, First Lieut. 6th Cavalry, U. S. A.,

Professor of Military Science and Tactics, and Assistant Professor of Mathematics, Park Hotel.

FRANK H. ELDRIDGE, Ass't Eng. U. S. N.,

Secretary *and Professor of Steam Engineering,* 99 Lexington avenue.

CYNTHIA U. WELD, A. M.,

Ass't Professor of History and English Language and Literature, Cor. Sixteenth and Waldeck avenues.

ALICE K. WILLIAMS,

Instructor in the French and German Languages, Woodruff avenue.

ASSISTANTS.

DAVID O'BRINE, B. Sc., M. E.,
Chemistry.

GEORGE W. McCOARD, A. M.,
Mathematics.

C. NEWTON BROWN,
Mathematics and Civil Engineering.

JOHN E. RANDALL, A. B.,
Physics.

SERN P. WATT,
Projection Drawing.

EMMA C. LEHNER,
Library.

OTHER OFFICERS.

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Bursar and Superintendent of Grounds.

JOHN J. JANNEY,
Superintendent of Farm.

MELVIN N. MIX,
President's Clerk.

MICHAEL DILLON,
Janitor.

OHIO GEOLOGICAL SURVEY.

Officers at the University.

EDWARD ORTON,
State Geologist.

NATHANIEL W. LORD,
Chemist.

OHIO AGRICULTURAL EXPERIMENT STATION.

Officers at the University.

WILLIAM R. LAZENBY,
Director.

NATHANIEL W. LORD,
Chemist.

WILLIAM S. DEVOL,
Botanist,

WILLIAM B. ALWOOD,
Superintendent of Field Experiments.

WILLIAM J. GREEN,
Superintendent of Horticultural Experiments.

OHIO METEOROLOGICAL BUREAU.

Officers at the University.

THOMAS C. MENDENHALL,
Director.

EDGAR H. MARK,
Secretary.

WILLIAM B. ALWOOD,
Observer.

STANDING COMMITTEES OF THE FACULTY.

The university has been divided, for convenience, into four schools, and the affairs of each school have been assigned to a standing committee of the faculty. The president of the university is *ex-officio* chairman of each committee.

I. THE SCHOOL OF AGRICULTURE.

PROFESSOR LAZENBY, *Secretary*.

PROFESSORS TOWNSHEND, ROBINSON, LORD, TUTTLE, WEBER.

II. THE SCHOOL OF ARTS AND PHILOSOPHY.

PROFESSOR DERBY, *Secretary*.

PROFESSORS ORTON, NORTON, SMITH, WELD AND WILLIAMS.

III. THE SCHOOL OF SCIENCE.

PROFESSOR TUTTLE, *Secretary*.

PROFESSORS NORTON, MENDENHALL, McFARLAND, ORTON.

IV. THE SCHOOL OF ENGINEERING.

PROFESSOR LORD, *Secretary*.

PROFESSORS McFARLAND, ROBINSON, MENDENHALL.

DEGREES CONFERRED JUNE, 1884.

Ackerman, Eli Osborn,	Columbus, Franklin county,		C. E.
Anderson, James Thomas,	Columbus, Franklin county,		A. B.
Chamberlain, Helena Whiting,	Amenia, N. Y.,		A. B.
DeLamatre, Clayton William,	North Monroeville, Huron county,		A. B.
Dun, George William,	Dublin, Franklin	"	B. Sc.
Howells, Edwin Stanton,	Massillon, Stark	"	E. M.
Lovejoy, Jesse R.	Columbus, Franklin	"	B. Sc.
Mead, Clinton Van Rensselaer,	Jefferson, Ashtabula	"	B. Ph.
Morton, George Luton,	Chagrin Falls, Cuyahoga	"	Mech.Eng.
Orton, Edward, Jr.,	Columbus, Franklin	"	E. M.
Sabine, Anna Ware,	Columbus, Franklin	"	A. B.
Sparks, Edward Erie,	Columbus, Franklin	"	A. B.
Wikoff, John Burkett,	Columbus, Franklin	"	B. Ph.

CATÀLOGUE OF STUDENTS.

This catalogue contains only the names of those students who have been in attendance during the first term of the current college year, together with the small number who entered during the second and third terms of the last year but have not returned. Besides these, there have been in attendance within the year 123 students whose names appeared in the last catalogue, but as they are not now in the university, their names are not republished. The entire number of different students in attendance within the year was 423.

POST GRADUATES.

Sabine, Annie Ware, A. B., Ohio State University, Columbus, Franklin county.

UNDERGRADUATES.

SENIOR CLASS.

Bentley, William Preston,	Wilmington, Clinton	county,	Agriculture.
Green, Clarence Creesy,	Middleport, Meigs	"	Science.
Harrison, William Henry,	Columbus, Franklin	"	Civil Eng.
Lovejoy, Ellis,	"	"	Mining Eng.
Malone, William Rufus,	Conneaut, Ashtabula	"	Arts.
Marple, Charles Allen,	Columbus, Franklin	"	Science.
Miller, Charles William,	"	"	Arts.
Mix, Melvin Noble,	"	"	Philosophy.
Peters, William Lincoln,	"	"	Mech. Eng.
Pleukharp, Charles Vernon,	"	"	Mech. Eng.
Root, Willis Jay,	Andover, Ashtabula	"	Mining Eng.
Schaub, Edward Louis Tascher,	Columbus, Franklin	"	Mech. Eng.
Scott, Charles Felton,	"	"	Arts.
Scott, Mary Odella,	"	"	Arts.
Taylor, Francis Asbury,	London, Madison	"	Arts.
Twiss, George Ransom,	Columbus, Franklin	"	Mech. Eng.

JUNIOR CLASS.

Connell, William Adams,	Portsmouth, Scioto	county,	Mining Eng.
Converse, Edward Jasper,	Columbus, Franklin	"	Arts.
Cunningham, George Strode,	Lancaster, Fairfield	"	Philosophy.
Fisher, Clara,	Columbus, Franklin	"	Arts.

Hill, Frank Edwin,	Neville, Clermont county,	Science.
Jones, Alfred Andrew,	Columbus, Franklin "	Civil Eng.
Keifer, William White,	Springfield, Clarke "	Arts.
Masters, George Albert,	Toledo, Lucas "	Civil Eng.
Negelspach, Otto,	Millersburg, Holmes "	Science.
Sabine, Wallace Clement,	Columbus, Franklin "	Arts.
Schroll, Otto,	" "	Civil Eng.
Scott, Anna Neill,	" "	Arts.
Scott, May Mermod,	" "	Arts.
Scott, Winfield,	" "	Science.
Smith, Horace Prescott,	Adams Mills, Muskingum "	Science.
Vandervoort, William,	Morrow, Warren "	Mining Eng.
Viets, Willis Burton,	Amboy, Ashtabula "	Mining Eng.
Watt, Sern Parley,	Jamestown, Neb.,	Mech. Eng.

SOPHOMORE CLASS.

Barmann, Clara Agatha,	Chillicothe, Ross county,	Science.
Chandler, Charles Edward,	Columbus, Franklin "	Arts.
Charters, William Filson,	New Lisbon, Col'biana "	Philosophy.
Converse, Howard Pendleton,	Columbus, Franklin "	Science.
Corns, Harry,	London, Madison "	Arts.
Crawford, William Sterling,	CuyahogaFalls, Summit "	Civil Eng.
Devol, William Stow,	Marietta, Washington "	Agriculture.
Davidson, Arthur,	Findlay, Hancock "	Civil Eng.
Eckhardt, Robert,	Columbus, Franklin "	Philosophy.
Eisenlohr, Berthold August,	New Braunfels, Texas,	Mech. Eng.
Emery, Vernon Judson,	Napoleon, Henry county,	Arts.
Erskine, James H.,	Lowellville, Mahoning "	Mining Eng.
Firestone, Joseph Frank,	Canton, Stark "	Science.
Haas, Louis George,	Dayton, Montgomery "	Civil Eng.
Hannum, William Hamilton,	Lancaster, Fairfield "	Arts.
Hartwell, Arthur,	Xenia, Greene "	Mech. Eng.
Hazlett, Robert, jr.,	Wheeling, W. Va.,	Civil Eng.
Herms, Albert Edward,	Portsmouth, Scioto county,	Science.
Hughes, Elizabeth A.,	Columbus, Franklin "	Philosophy.
Hull, Joseph Curtis,	" "	Mining Eng.
Hunt, William Franklin,	Miamisburg, Montg'y "	Mech. Eng.
Hunter, Theodore Alton,	Union City, Pa.,	Arts.
Hyde, Wilby Grimes,	New Holland, Pickaway co.,	Arts.
Jones, Olive Branch,	Newark, Licking "	Arts.
Kahler, Harry Adams,	McConnelsville, Morgan "	Civil Eng.
ehne [illegible] Emma,	Mifflinsville, Franklin "	Science.
Long, John Andrew,	Sharon, Noble "	Arts.
McPherson, William, jr.,	Xenia, Greene "	Science.
Miller, Ira Harris,	Columbus, Franklin "	Arts.
Milligan, James Porter,	Rushville, Fairfield "	Arts.
Mullay, Annie,	Columbus, Franklin "	Philosophy.

Munger, John Charles,	Xenia, Greene	county,	Philosophy.
Myers, Joseph Simmons,	Columbus, Franklin	"	Arts
Myers, Uriah Henry,	Columbus, Franklin	"	Mining Eng.
Oster, Albert Cochran,	Mansfield, Richland	"	Civil Eng.
Parsons, Willis Chester,	Columbus, Franklin	"	Science.
Ray, Frank Arnold,	Jefferson, Ashtabula	"	Mech. Eng.
Reeves, Archibald Crawford,	Dayton, Montgomery	"	Civil Eng.
Scheibell, William Oliver,	Columbus, Franklin	"	Mining Eng.
Scott, Daisy Medill,	"	"	Arts.
Sharp, Amos William,	"	"	Science.
Siebert, Wilbur Henry,	"	"	Arts.
Siegel, Frank Anthony,	"	"	Science.
Smart, George,	Chillicothe, Ross	"	Philosophy.
Stuck, John Tillman,	Celina, Mercer	"	Science.
Thompson, Howard Napoleon,	Columbus, Franklin	"	Science.
Webb, Scott Anderson,	Jefferson, Ashtabula	"	Philosophy.
Welch, Clark Jay,	Sandy Creek, N. Y.,		Civil Eng.
Whiley, Charles Bell,	Lancaster, Fairfield	county,	Arts.
Wilson, John Wesley,	Columbus, Franklin	"	Philosophy.
Woodworth, Henry Julian,	Jefferson, Ashtabula	"	Science.
Woolf, Edgar Hall,	Grove City, Franklin	"	Science.
Zaumseil, Oscar Clemens,	Ripley, Brown	"	Civil Eng.

FRESHMAN CLASS.

Ackley, Charles Brown,	N.Bloomfield,Trumbull	county,	Mech. Eng.
Aldrich, Chester Hardy,	Pierpont, Ashtabula	"	Arts.
Alspach, Edmund Frank,	Canal Winch'r, Franklin	"	Arts.
Baker, Edwin Rice,	Lima, Allen	"	Civil Eng.
Ball, Fred Samuel,	Portsmouth, Scioto	"	Philosophy.
Barren, Henry A.,	Cleveland, Cuyahoga	"	Mech. Eng.
Beatty, George William,	Columbus, Franklin	"	Arts.
Beatty, William Gurley,	Portsmouth, Scioto	"	Agriculture.
Boyd, Emma,	Plain City, Madison	"	Philosophy.
Brown, Frederick Winder,	Zanesfield, Logan	"	Mining Eng.
Brundage, Lawrence Houghton,	Xenia, Greene	"	Science.
Capron, Marshall Fremont,	Conneaut, Ashtabula	"	Science.
Cathcart, Josephine Maud,	Columbus, Franklin	"	Science.
Cellarius, Frederick Julius,	Dayton, Montgomery	"	Civil Eng.
Craig, Moses,	Rochester, N. Y.,		Philosophy.
Crowell, Charles Agnew,	Mt. Vernon, Knox	county,	Mech. Eng.
Davis, Charles Anderson,	Columbus, Franklin	"	Science.
Dyer, Joseph Hooker,	Georgesville, Franklin	"	Philosophy.
Fawcett, Joseph Mitchell,	Carrollton, Carroll	"	Civil Eng.
Fawcett, William Charles,	Kilgore, Carroll	"	Civil Eng.
Fitzpatrick, John Joseph,	Columbiana, Columbiana	"	Science.

Frambes, Joseph Almon,	Columbus, Franklin	county,	Arts.
Fravel, George Bancroft,	"	"	Civil Eng.
Garrett, Howard Thompson,	"	"	Mech. Eng.
Gates, Harry Morton,	"	"	Civil Eng.
Godman, Leonard Harper,	"	"	Arts.
Gordon, Adelaide C.,	"	"	Philosophy
Grant, Edward Crum,	Springfield, Clark	"	Mech. Eng.
Hawley, Charles Augustus,	Milan, Erie	"	Philosophy.
Hayes, Seth,	Columbus, Franklin	"	Civil Eng.
Heath, Arthur Theodore,	Cuyahoga Falls, Summit	"	Arts.
Hedges, Harry,	Urbana, Champaign	"	Arts.
Higgins, Patrick James,	Summerford, Madison	"	Arts.
Hitchcock, Halbert Kellogg,	Akron, Summit	"	Mech. Eng.
Holton, Harry Steinell,	Columbus, Franklin	"	Civil Eng.
Kemmler, Edward Albert,	Columbus, Franklin	"	Arts.
Kingsbury, Albert,	Cuyahoga Falls, Summit	"	Mech. Eng.
Lord, Henry Curwen,	Cincinnati, Hamilton	"	Science.
McConnell Edward Thomas,	Columbus, Franklin	"	Civil Eng.
Mix, Edgar Woods,	Columbus, Franklin	"	Science.
Moore, Willis G.,	Fultonham, Muskingum	"	Civil Eng.
Morrow, Edward Robert,	Dresden, Muskingum	"	Philosophy.
Nace, Edward Ellis,	Columbus, Franklin	"	Arts.
Needels, Ada Ruckles,	Groveport, Franklin	"	Philosophy.
Neil, Olive,	Columbus, Franklin	"	Philosophy.
Noel, Elijah Putnam,	Portsmouth, Scioto	"	Philosophy.
O'Harra, Arthur,	Columbus, Franklin	"	Civil Eng.
Oppenheimer, Samuel,	Marion, Marion	"	Civil Eng.
Patchell, Owen Wilson,	Stone Lick, Clermont	"	Philosophy.
Prine, William Ellsberry,	Ironton, Lawrence	"	Arts.
Sayler, Lurton Roscoe,	Gratis, Preble	"	Arts.
Scott, Emma,	Columbus, Franklin	"	Philosophy.
Shedd, Carlos Butler,	"	"	Science.
Smith, George Anthony,	Columbiana, Columbiana	"	Science.
Smith, William Buzard,	"	"	Philosophy.
Stephens, Herbert Taylor,	Adrian, Michigan,		Arts.
Tarbox, Theodore Howard,	Cedarville, Greene	county,	Civil Eng.
Taylor, Frank James,	Columbus, Franklin	"	Civil Eng.
Taylor, Joseph Russell,	London, Madison	"	Arts.
Thompson, Anna Elizabeth,	Columbus, Franklin	"	Science.
Van Harlingen, Katharine,	"	"	Science.
Wadsworth, F. Lawton Olcott,	Wellington, Lorain	"	Civil Eng.
Whiteman, Benjamin Butler,	Georgetown, Brown	"	Civil Eng.
Wilgus, James Alva,	Conover, Miami	"	Philosophy.
Williams, Allen Winthrop,	Columbus, Franklin	"	Mech. Eng.

SECOND PREPARATORY CLASS.

Angier, George McNeil,	Columbus, Franklin	county,	Science.
Ayers, Theodore Chandler,	Morristown, Belmont	"	Philosophy.
Bownocker, John Adams,	Amanda, Fairfield	"	Arts.
Brashears, Caroline P.,	Columbus, Franklin	"	Arts.
Burgess, Milton S.,	Cambridge, Guernsey	"	Science.
Butler, Lucy,	Columbus, Franklin	"	Science.
Carle, Roscoe Litchfield,	Tiffin, Seneca	"	Civil Eng.
Cathcart, Clarence Cassius,	West Milton, Miami	"	Philosophy.
Caylor, Chauncey Leander,	Columbus, Franklin	"	Science.
Dare, Charles Henry,	Wash'gton C. H., Fayette	"	Science.
Fergus, John Franklin,	West Charleston, Miami	"	Philosophy.
Foos, Stanley Berthier,	Eaton, Preble	"	Science.
Fox, Edgar B.,	Columbus, Franklin	"	Philosophy.
Garber, Alberta Donizetta,	"	"	Philosophy.
Gregg, Frank Benham,	Springboro, Warren	"	Philosophy.
Hagler, Howard,	Wash'gton C. H., Fayette	"	Agriculture.
Hatfield, Charles,	Cincinnati, Hamilton	"	Arts.
Holloway, Clarence C.,	Columbus, Franklin	"	Civil Eng.
Hunter, Mitchell Matthew,	Sewellsville, Belmont	"	Philosophy.
Innis, Lew Wallace,	Columbus, Franklin	"	Agriculture.
Kirker, Harry L.,	Ironton, Lawrence	"	Science.
Knopf, Sidney Phillip,	Columbus, Franklin	"	Science.
Lafever, George Buckingham,	Westerville, Franklin	"	Agriculture.
Lasley, Montgomery,	Columbus, Franklin	"	Arts.
Martin, John Madison,	Stella, Vinton	"	Arts.
Meek, William Warfield,	Columbus, Franklin	"	Philosophy.
Morrey, William Thomas,	Chester Hill, Morgan	"	Philosophy.
Needels, Blanche R.,	Groveport, Franklin	"	Philosophy.
Needels, Cora R.,	"	"	Philosophy.
Neil, Hannah,	Columbus, Franklin	"	Philosophy.
Norris, Walter B.,	"	"	Arts.
Peasley, Frederick Merrick,	Flint, Franklin	"	Philosophy.
Prather, William T.,	Columbus, Franklin	"	Agriculture.
Pritchard, Frederick H.,	New Lisbon, Columbiana	"	Science.
Rannells, Anna King,	McArthur, Vinton	"	Philosophy.
Rannells, David Archie,	"	"	Science.
Raymund, Frank M.,	Basil, Fairfield	"	Arts.
Schaeffer, John Winans,	Troy, Miami	"	Science.
Shanck, John Emmett,	Union, Montgomery	"	Civil Eng.
Sharp, Charles Cutler,	Sugar Grove, Fairfield	"	Civil Eng.
Sharpe, George Herbert,	Pierre, Dak.,		Civil Eng.
Sigerfoos, Charles Peter,	Arcanum, Darke	"	Science.
Stidham, Ferdinand Dutton,	Cincinnati, Hamilton	"	Arts.
Thompson, Frances,	Columbus, Franklin	"	Philosophy.
Weidner, Harry,	Dayton, Montgomery	"	Civil Eng.

Weiss, Walter Salem,	Champion, Trumbull	county,	Science.
Williamson, John Furrow,	Piqua, Miami	"	Civil Eng.
Woodworth, Wendell Albert,	S. New Lyme, Ashtabula	"	Science.
Wright, William Shrewsbury,	Cincinnati, Hamilton	"	Mech. Eng.

FIRST PREPARATORY CLASS.

Addison, Louis Granville,	Zanesville, Muskingum	county,	Philosophy.
Baker, Cornelius Brant,	Brookville, Montgomery	county,	Civil Eng.
Baumgartner, Clark,	Grove City, Franklin	county,	Mech. Eng.
Beem, Albert Kent,	Beech, Licking	"	Agriculture.
Boyd, James Ellsworth,	Brush Creek, Musk'gum	"	Arts.
Boyd, James Grant,	Plain City, Madison	"	Agriculture.
Braun, Walter,	Columbus, Franklin	"	Arts.
Bricker, Lorin H.,	Rich Hill, Knox	"	Arts.
Clare, Earl Stanton,	Portsmouth, Scioto	"	Mining Eng.
Craft, Ernest Judson,	Columbus, Franklin	"	Arts.
Cranz, Eugene Franz,	Ira, Summit,	"	Agriculture.
Cretcher, Harry Donally,	DeGraff, Logan	"	Philosophy.
Doty, Harriet M.,	Columbus, Franklin	"	Philosophy.
Drennen, Jefferson Nichol,	Loydsville, Belmont	"	Civil Eng.
Ewing, Charles Edwin,	W. Baltimore, Montg'mry	"	Arts.
Farnsworth, William Grant,	Waterville, Lucas	"	Agriculture.
Fisher, John Cleveland,	Columbus, Franklin	"	Science.
Fox, Charles Pinckney,	Springboro, Warren	"	Philosophy.
Fox, Gertrude,	Columbus, Franklin	"	Philosophy.
Freeman, Lewis Condit,	"	"	Arts.
Grimm, May E.,	"	"	Science.
Harsh, Leslie Albert,	Com'cial Point, Pickaway	"	Science.
Hart, Hiram,	Chester Hill, Morgan	"	Philosophy.
Hartman, Hudson Carman,	Columbiana, Columbiana	"	Philosophy.
Hazeltine, Arthur Martin,	Conneaut, Ashtabula	"	Science.
Hess, Charles Richard,	Columbus, Franklin	"	Civil Eng.
Hine, Jerome Pierce,	Milan, Erie	"	Science.
Hunt, Monnie Rosa,	Columbus, Franklin	"	Science.
Hunter, William Cunningham,	"	"	Agriculture.
Huston, James Andrew,	DeGraff, Logan	"	Philosophy.
Johnson, Henry Ford,	Burton, Geauga	"	Agriculture.
Johnson, Willis Grant,	New Albany, Franklin	"	Science.
Jones, Caroline Elizabeth,	Columbus, Franklin	"	Science.
Laughlin, Hugh Clarence,	Belle Centre, Logan	"	Arts.
Leland, Wilford Chester,	Columbus, Franklin	"	Mech. Eng.
Ling, Lawrence,	Hanoverton, Columb'na	"	Arts.
Ling, Reese M.,	Columbus, Franklin	"	Arts.
Linton, Alfred,	"	"	Science.
Long, Minnie Amanda,	Fort Clinton, Ottawa	"	Philosophy.
Loomis, Finney Briggs,	Lodi, Medina	"	Civil Eng.

Merritt, Charles Josiah,	Selma, Clarke	county,	Agriculture.
Minnick, Harvey C.,	Potsdam, Miami	"	Philosophy.
Mulligan, Anna Belle,	Columbus, Franklin	"	Philosophy.
Needels, Mana R.,	Groveport, Franklin	"	Philosophy.
Oviatt, Charles Casper,	West Richfield, Summit	"	Arts.
Priddy, Wilbur Nathan,	Wash'gton C.H., Fayette	"	Science.
Ritchey, Joseph Chalmers,	Oak Dale, Belmont	"	Civil Eng.
Roberts, Harry D.,	Riley, Butler	"	Civil Eng.
Safford, Robert,	Waverly, Pike	"	Arts.
Scott, Bertha,	Columbus, Franklin	"	Philosophy.
Sharp, Joseph Henderson,	Sugar Grove, Fairfield	"	Science.
Shattuck, Ellen,	Columbus, Franklin	"	Philosophy.
Shaw, Edgar Berton,	Lodi, Medina	"	Mech. Eng.
Slyh, Charles Rodolphus,	Columbus, Franklin	"	Civil Eng.
Smith, Charles Gilbert,	"	"	Mech. Eng.
Stotts, Clarence Eugene,	North Fairfield, Huron	"	Agriculture.
Thompson, Frank Ewell,	New Carlisle, Clarke	"	Arts.
Thompson, James Elmer,	"	"	Arts.
Tozer, Jane Ursula,	Columbus, Franklin	"	Science.
Van Meter, Frank Reynolds,	Horr, Champaign	"	Mech. Eng.
Weybrecht, Charles Christopher,	Alliance, Stark	"	Civil Eng.
Williams, Don Rosswell,	Wellington, Lorain	"	Mech. Eng.
Woolf, Charles Spencer,	Grove City, Franklin	"	Agriculture.
Youmans, Jessie Belle,	Columbus, Franklin	"	Philosophy.
Youmans, Thomas Grant	"	"	Philosophy.
Young, Irvin Willis,	Lockbourne, Franklin	"	Agriculture.

IRREGULAR PREPARATORY.

Beardsley, Coryadon O.,	Ottawa, Putnam	county,	Science.
Brown, Warner Bateman,	Columbus, Franklin	"	Science.
Dickey, Clarence Walter,	Central College, Franklin	"	Civil Eng.
Dickson, David Houston,	New Bedford, Lawrence Co., Pa.,		Mech. Eng.
Elliott, William Ulysses,	Zanesville, Muskingum	county,	Mech. Eng.
Evans, Isaac David,	Columbus, Franklin	"	Civil Eng.
Francis, Mark,	Paddy's Run, Butler	"	Agriculture.
George, Rowley,	Mt. Vernon, Knox	"	Mech. Eng.
Graham, David Ferguson,	New Way, Licking	"	Mech. Eng.
Graham, William James,	Richwood, Union	"	Civil Eng.
Greene, Grant,	Sedalia, Madison	"	Civil Eng.
Greene, Jerome Joseph,	Somerset, Perry	"	Civil Eng.
Greer, James Boyd,	Milroy, Mifflin county, Pa.,		Mech. Eng.
Griffin, Theodore Lyman,	Columbus, Franklin	county,	Science.
Hamilton, Frederick B.,	Youngstown, Mahoning	"	Mech. Eng.
Harner, Jacob Miller,	West Liberty, Logan	"	Mech. Eng.
Helman, Elmer Ellsworth,	New Lisbon, Columbiana	"	Philosophy.
Henry, George A.,	Hanoverton, "	"	Civil Eng.

Hoge, Osmond Monroe,	Cambridge, Guernsey	county,	Civil Eng.
Keene, Elmer L.,	Fairfield, Oregon,		Civil Eng.
Lamme, Benjamin Garver,	Medway, Clarke	county,	Mech. Eng.
Lewis, Marc Winfield,	New Trenton, Ind.,		Civil Eng.
Longenbaugh, Noah,	Nebraska, Pickaway	county,	Civil Eng.
Neil, David Birney,	Columbus, Franklin	"	Mech. Eng.
Palmer, Charles Ernest,	Burbank, Wayne	"	Civil Eng.
Phillips, Daniel B.,	Ogdensburg, N. Y.,		Mech. Eng.
Rice, William Edgar,	Chilo, Clermont	"	Science.
Riggs, John David,	Lawrence, Kansas,		Mech. Eng.
Schaeffer, Eckert,	Troy, Miami	"	Mech. Eng.
Schilling, Mary Ella,	Louisville, Stark	"	Science.
Smith, Charles P.,	Clintonville, Franklin	"	Civil Eng.

SUMMARY.

Post Graduate		1
Under Graduates—		
Seniors	16	
Juniors	18	
Sophomores	53	
Freshmen	65	
	——	152
Preparatory—		
Second year	49	
First year	66	
Irregular	31	
	——	146
		——
Total		298

By Courses (in regular collegiate classes)—	
Bachelor of Arts	39
" Philosophy	24
" Science	30
" Agriculture	3
Civil Engineer	29
Mining Engineer	10
Mechanical Engineer	17
	——
Total	152

DEGREES AND COURSES OF STUDY.

The university offers three general degrees, viz.: bachelor of arts (B. A.), bachelor of philosophy (B. Ph.), and bachelor of science (B. Sc.). It also offers four special degrees, viz.: civil engineer (C. E.), mining engineer (E. M.), mechanical engineer (Mech. Eng.), and bachelor of agriculture (B. Ag.).

In addition to these degrees, certificates of work done in the several departments will be granted, as hereafter stated.

A preparatory course of two years duration is provided for those students who enter the university directly from the common or district schools. This course includes the ordinary studies of the better grade of the high schools of the state. It is expected that the graduates of these schools can sustain examination in the entire preparatory course, and enter directly upon proper college work.

PREPARATORY COURSE.

FIRST YEAR.

First Term—Algebra, from Quadratics; English; Latin or German.

Second Term—Algebra completed; United States History; Latin or German.

Third Term—Botany; General History; Latin or German.

SECOND YEAR.

First Term—Geometry; Physical Geography; Latin or German.

Second Term—Geometry completed; Physics; Latin or German.

Third Term—Plane Trigonometry; Physics; Latin or German.

Exercises in Rhetoric and English Composition one hour each week throughout the year.

Either Latin or German, as named above, is to be chosen for a two years couse. Students looking forward to the degree of bachelor of arts, or to the degree of bachelor of philosoply, will take Latin; candidates for the degree of civil engineer or mechanical engineer will take Latin or German; and candidates for other degrees will take German.

Text-Books—Algebra, *Loomis;* Geometry, *Loomis;* Trigonometry, *Loomis;* Physical Geography, *Guyot;* United States History, *Eliot;* General History, *Swinton;* Botany, *Wood;* Physics, *Gage.*

The text-books in Latin and German will be found under the heads of these departments on a subsequent page.

GENERAL AND TECHNICAL COURSES.

In the following schedules the studies required for the several degrees of the university are named. The character and amount of work done in each can be further learned from the detailed statements in regard to the departments that follow the schedules. It will be observed that a considerable amount of the work is common to the several courses, and, further, that this common work is made, for the most part, synchronistic in the courses.

(A.) GENERAL COURSES.

FOR THE DEGREE OF BACHELOR OF ARTS.

Freshman Year.

First Term.	Latin, *Livy*, 3. Physiology, 2.	Greek, *White's Lessons*.	Chemistry, *Norton*.
Second Term.	Latin, *Livy*, 3. Physiology, 2.	Greek, *Lessons and Anabasis, Book I.*	Chemistry, *Norton*.
Third Term.	Latin, *Horace, Odes*, 3. Physiology, 2.	Greek, *Anabasis, Books II and III.*	Chemistry, *Lectures*, 2. Mineralogy, *Dana*, 3.

Sophomore Year.

First Term.	Latin, *Tacitus*, 4. English, *Rhetoric, A. S. Hill*, 2.	Greek, *Memorabilia, and Phœdon*, 3. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.
Second Term.	Latin, *Plautus*, 4. English, *Rhetoric, A. S. Hill*, 2.	Greek, *Herodotus, Selections*, 3. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.
Third Term.	Latin, *Cicero*, 4. English, *Language, Whitney*, 2.	Greek, *Homer*, 3. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.

Junior Year.

First Term.	Psychology, *Porter*, 3. Anglo-Saxon, *March's Gram. and Reader*, 2.	Greek, *Thucydides*, 3. Latin, *Juvenal*, 3.	Geology, *Le Conte*.
Second Term.	Psychology, *Porter*, 3. Chaucer, 2.	Greek, *Euripides*, 3. Latin, *Cicero*, 3.	Geology, *Le Conte*.
Third Term.	Metaphysics, 3. Shakespeare, 2.	Greek, *Demosthenes*, 3. Latin, *Quintilian*, 3.	Astronomy, *Loomis*.

Senior Year.

First Term.	Ethics, 3. Logic, 2.	Greek, *Homer*, 3. English Literature, 2.	Political Economy, *Mill*, 2. Elective course in Science for the year.
Second Term.	Constitutional Hist., 3. Logic, 2.	Greek, *Sophocles*, 3. English Literature, 2.	
Third Term.	History of Philosophy, *Schwegler*, 3. Constitution of the United States, 2.	Greek, *Pindar*, 3. English Literature, 2.	

FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

Freshman Year.

First Term.	Latin, *Livy*, 3. Physiology, 2.	French, *Grammar*, *Duffet*.	Chemistry, *Norton*.
Second Term.	Latin, *Cicero*, 3. Physiology, 2.	French, *Masson's Classics*.	Chemistry, *Norton*.
Third Term.	Latin, *Horace*, *Odes*, 3. Physiology, 2.	French, *Masson's Classics*.	Chemistry, *Lectures*, 2. Mineralogy, *Dana*, 3.

Sophomore Year.

First Term.	Latin, *Tacitus*, 4. English, *Rhetoric*, *A. S. Hill*, 2.	French, *Moliere*, 2. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.
Second Term.	Latin, *Plautus*, 4. English, *Rhetoric*, *A. S. Hill*, 2.	French, *Corneille*, 2. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.
Third Term.	Latin, *Cicero*, 4. English, *Language*, *Whitney*, 2.	French, *Feuillet*, 2. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.

Junior Year.

First Term.	Psychology, *Porter*, 3. Anglo-Saxon, *March's Gram. and Reader*, 2.	History, 3. Latin, *Juvenal*, 3.	Geology, *Le Conte*.
Second Term.	Psychology, *Porter*, 3. Chaucer, 2.	History, 3. Latin, *Cicero*, 3.	Geology, *Le Conte*.
Third Term.	Metaphysics, 3. Shakespeare, 2.	History, 3. Latin, *Quintilian*, 3.	Astronomy.

Senior Year.

First Term.	Ethics, 3. Logic, 2.	History, 3. English Literature, 2.	Political Economy, *Mill*, 2. Elective course in Science for the year.
Second Term.	Constitutional History, 3. Logic, 2.	History, 3. English Literature, 2.	
Third Term.	History of Philosophy, *Schwegler*, 3. Constitution of the United States, 2.	History, 3. English Literature, 2.	

FOR THE DEGREE OF BACHELOR OF SCIENCE.

Freshman Year.

First Term.	Spherical and Analytical Trigonometry, 3. Physiology, 2.	French, *Duffet's Grammar.*	Chemistry, *Norton.*
Second Term.	Spherical and Analytical Trigonometry, 3. Physiology, 2.	French, *Masson's Classics.*	Chemistry, *Norton.*
Third Term.	Higher Algebra, 3. Physiology, 2.	French, *Masson's Classics.*	Chemistry, *Lectures*, 2. Mineralogy, *Dana*, 3.

Sophomore Year.

First Term.	Elective course in Botany, Chemistry, Pure Mathematics, or Anatomy and Physiology, for the year. English for the year: First and Second Terms, Rhetoric, *A. S. Hill*, 2; Third Term, *Language, Whitney*, 2.	French, *Moliere*, 2. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.
Second Term.		French, *Corneille*, 2. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.
Third Term.		French, *Racine*, 2. Physics, *Daniell*, 3.	Botany, *Lectures*, 2. Zoology, *Lectures*, 2.

Junior Year.

First Term.	Elective course in Botany, Chemistry, or Physics for the year.	Elective course from sciences already named, with addition of Comparative Anatomy.	Geology, *Le Conte.*
Second Term.			Geology, *Le Conte.*
Third Term.			Astronomy, *Loomis.*

Senior Year.

First Term.	Logic, 2.	Elective course in Science.	Elective course from list of sciences named above, with the addition of Geology.	Psychology, *Porter*, 3. Political Economy, *Mill*, 2.
Second Term.	Logic, 2.			Psychology, *Porter*, 3. Political Economy, *Mill*, 2.
Third Term.	Constitution of the United States, 2.			Metaphysics, 3. Political Economy, *Mill*, 2.

(B). TECHNICAL COURSES.

FOR THE DEGREE OF CIVIL ENGINEER.

Freshman Year.

The same as for the degree of Bachelor of Science.

Sophomore Year.

First Term.	Surveying with Field Practice. Platting and Lettering.	French, *Moliere*, 2. Physics, *Daniell*, 3.	Analytical Geometry.
Second Term.	Descriptive Geometry, 3. Astronomy, 2.	French, *Corneille*, 2. Physics, *Daniell*, 3.	Differential Calculus.
Third Term.	Descriptive Geometry, 2. Astronomy, 3.	French, *Racine*, 2. Physics, *Daniell*, 3.	Integral Calculus.

Junior Year.

First Term.	Mahan's Civil Engineering.	Geology.	Analytical Mechanics.
Second Term.	Bridge Strains—Graphic Process.	Geology.	Maps, Shading, Tinting, etc.
Third Term.	Girder Bridges, Walls, Arches, etc.	Geology (Economic).	Drawing for Engineering Structures.

Senior Year.

First Term.	Railroad Field Work. Henck's Field Book.	Physics.	Strength of Materials. Hydraulics. Political Economy, *Mill*, 2.
Second Term.	Drawing—Shadows and Perspective.	Physics.	Blow-pipe Analysis. Political Economy, *Mill*, 2.
Third Term.	Higher Geodesy.	Physics.	Plans, etc. Political Economy, *Mill*, 2.

FOR THE DEGREE OF MECHANICAL ENGINEER.

Freshman Year.

The same as for the degree of Bachelor of Science.

Sophomore Year.

First Term.	Analytical Geometry.	French, *Moliere*, 2. Physics, *Daniell*, 3.	Mechanical Laboratory, 3. Projection Drawing, 2.
Second Term.	Differential Calculus.	French, *Corneille*, 2. Physics, *Daniell*, 3.	Mechanical Laboratory, 3. Descriptive Geometry, 3.
Third Term.	Integral Calculus.	French, *Racine*, 2. Physics, *Daniell*, 3.	Mechanical Laboratory, 3. Projection Drawing, 2.

Junior Year.

First Term.	Geology.	Metallurgy.	Analytical Mechanics.
Second Term.	Geology.	Metallurgy.	Mechanism.
Third Term.	Astronomy.	Mechanical Laboratory. Designing.	Mechanism.

Senior Year.

First Term.	Thermo-Dynamics. Pneumatics.	Physics.	Strength of Materials. Hydraulics. Mechanical Laboratory, 2.
Second Term.	Prime Movers.	Physics.	Technical Drawing. Mechanical Laboratory, 2.
Third Term.	Mill-work.	Physics.	Machine Designing and Drawing. Constitutional History, 2.

FOR THE DEGREE OF MINING ENGINEER.

Freshman Year.

The same as for the degree of Bachelor of Science.

Sophomore Year.

First Term.	Physics, 3. Projection Drawing, 2.	Analytical Geometry.	Analytical Chemistry.
Second Term.	Physics, 3. Descriptive Geometry, 3.	Differential Calculus.	Analytical Chemistry.
Third Term.	Physics, 3. Projection Drawing, 2.	Integral Calculus.	Analytical Chemistry.

Junior Year.

First Term.	Geology.	Metallurgy.	Analytical Chemistry.
Second Term.	Geology.	Metallurgy.	Analytical Chemistry.
Third Term.	Geology (Economic).	Metsllurgy.	Analytical Chemistry.

Senior Year.

First Term.	Assaying.	Analytical Mechanics.	Strength of Materials.
Second Term.	Mining Engineering.	Plans, Specifications, and Estimates for Metallurgical Works.	Blow-pipe Analysis.
Third Term.	Coal Washing and Mechanical Treatment of Ores.	Plans, Specifications, etc.	Determinative Mineralogy.

FOR THE DEGREE OF BACHELOR OF AGRICULTURE.

Freshman Year.

First Term.	Spherical and Analytical Trigonometry, 3. Mechanical Laboratory, 3.	Economic Botany.	Chemistry.
Second Term.	Spherical and Analytical Trigonometry, 3. Mechanical Laboratory, 3.	Physiological Botany.	Chemistry.
Third Term.	Higher Algebra, 3. Mechanical Laboratory, 3.	Special Botany, Grasses, etc.	Chemistry, 2. Mineralogy, 3.

Sophomore Year.

First Term.	Physics, 3. Zoology, 2.	Horticulture (General Principles). Fruit Culture.	Analytical Chemistry.
Second Term.	Physics, 3. Zoology, 2.	Horticulture (Vegetable Gardening and Seed Growing). Arboriculture and Practical Forestry.	Analytical Chemistry.
Third Term.	Physics, 3. Zoology, 2.	Horticulture (Land scape Gardening), (Practical Horticulture).	Analytical Chemistry.

Junior Year.

First Term.	Anatomy and Physiology.	Geology.	Agricult'l Chemistry.
Second Term.	Anatomy and Physiology.	Geology.	Agricult'l Chemistry.
Third Term.	Anatomy and Physiology.	Geology (Economic).	Agricult'l Chemistry.

Senior Year.

First Term.	Soils, Manures, etc.	Domestic Animals—Varieties, etc.	Diseases of Animals. Political Economy, *Mill*, 2.
Second Term.	Farm Crops and Tillage.	Breeding and Feeding Stock.	Principles of Treatm't. Political Economy, *Mill*, 2.
Third Term.	Farm Improvement and Management.	Dairying. Wool Growing, etc.	Particular Diseases. Political Economy, *Mill*, 2.

SHORT AGRICULTURAL COURSE.

FIRST YEAR.

First Term.	Mathematics.	Physical Geography.	Agricult'l Chemistry.
Second Term.	Mathematics.	Physics.	Agricult'l Chemistry.
Third Term.	Botany.	Physics.	Agricult'l Chemistry.

SECOND YEAR.

First Term.	Agriculture.	Mechanical Laborat'y. Physiology.	Veterinary Science.
Second Term.	Agriculture.	Mechanical Laborat'y, Physiology.	Veterinary Science.
Third Term.	Agriculture.	Horticulture. Physiology.	Veterinary Science.

Lectures on zoology will be delivered to the class once a week throughout the year.

DEPARTMENTS AND RANGE OF INSTRUCTION.

The range of instruction in the several subjects named in the preceding schedules is more particularly defined in the following statements of the work provided in the different departments of the university.

PHYSICS.

PROFESSOR MENDENHALL.

For this subject ample provision has been made in the equipment of the institution. It is safe to say that, in the opportunities afforded for thorough study in it, the university already surpasses most of the institutions of the country. Its laboratory is supplied with expensive and well-selected apparatus, designed not only for illustration, but also for original research in all the leading divisions of the science. Students are directed to its use in the way of original investigation as soon as they are properly prepared to undertake such work.

The instruction in physics comprises three grades of work.

In the preparatory course, the elements or general principles of physics are taught during the second and third terms. The work consists, in the main, of a daily recitation, for which lectures by the instructor are occasionally substituted. This course is strictly elementary in its character, and is fully illustrated by experiments throughout.

During the sophomore year all regular students have a recitation in physics on three days of each week. In this course a text-book is used, and the work consists of recitations and lectures combined. Application is here made of the student's knowledge of mathematics to the more advanced portions of physics. The formulæ representing the more important physical laws are developed, and experiment is made use of whenever necessary to the elucidation of the subject.

In addition to the above, students in civil or in mechanical engineering are required to give the equivalent of one daily recitation throughout one year to higher physics. Candidates for the degrees of bachelor of arts and bachelor of philosophy, may elect the same for one year, and candidates for the degree of bachelor of science for one, two, or three years. The work in this course consists largely of laboratory practice. Lectures are given regularly to the whole class upon subjects of general interest, such as making and reducing observations and their discussion, including the method of least squares. Text-books are used and lectures given upon special subjects of study. The attempt is made to render all students familiar with methods of original research, and as far as possible every student is required to do something in the way of original investigation. Before beginning this grade of work students should have completed the course in pure mathematics.

CHEMISTRY.

PROFESSOR NORTON.

All students who wish to obtain a degree are required to study chemistry for two and two-fifths terms. During this time general chemistry, together with its most important applications to the arts, is taught by the use of text-books and lectures, illustrated by an ever-growing collection of the materials used in the manufactures, and by a very complete suite of experiments.

After the completion of this elementary course, those who desire to devote special attention to chemistry enter the analytical laboratory, where they can carry on their work for two years or more. This laboratory work is *required* only of students in mining. Any other student may enter the laboratory if his time and his strength permit.

The course in analytical chemistry provides full instruction in all departments of the science. In connection with the ordinary work of qualitative chemistry, the student is taught the use of the spectroscope, and of the blow-pipe in determinative mineralogy. He is also employed in making various compounds, and, if his time permit, studies exhaustively one or more of the elements and its important compounds.

The course in quantitative chemistry includes both the gravimetric and volumetric methods. The analyses are at first confined to those compounds whose structure is known, and afterwards extended to such bodies as the student may require in the special branch of the science to which he desires to devote himself. Opportunity is offered for the study of coals, ores, minerals, fertilizers, soils, or of the useful and the waste products in manufactures.

If the student desire, he will also be assisted in taking up in detail topics which relate to agriculture, to pharmacy, to medicine, and to other sciences, or to arts in which the principles of chemistry are applied. A full course of assaying is given in the mining laboratory, which is also open to the students of chemistry.

A summary of the course is given below.

REQUIRED OF ALL CANDIDATES FOR GRADUATION.

GENERAL CHEMISTRY—TWO AND TWO-FIFTHS TERMS.

Inorganic and Organic Chemistry, and the application of Chemistry to the arts.

SPECIAL COURSE.

FIRST YEAR.

First Term—Qualitative Analysis: Exercises in Blow-pipe and Flame Reactions, Reactions in the dry way, Reactions of Single Bases and Acids.

Second Term—Qualitative Analysis continued: Determination of Mixtures, Blow-pipe Mineralogy, Preparation of Compounds.

Third Term—Quantitative Analysis, Stoichiometry, Review of General Chemistry throughout the year.

SECOND YEAR.

Quantitative Analysis: Special studies in Chemistry applied to Pharmacy, to Agriculture, to Manufactures, and to the Arts.

Text-Books.—Norton's Chemistry, Fowne's Chemistry, Beilstein's Manual, Galloway's Qualitative Chemistry, Will's Analytical Chemistry, Classen's Quantitative Chemistry, Fressenius's Quantitative Chemistry, Caldwell's Agricultural Chemistry.

Books of Reference.—Watt's Dictionary of Chemistry, Handwœrterbuch der Chemie, Gmelin's Hand-Book of Chemistry, Wagner's Chemical Technology, Graham-Otto's Chemie, Rose's Analytischen Chemie, Hoppe-Seyler and Gorup-Besanez's Physiologischen Chemie, Elderhorst's Determinative Mineralogy, Fressenius's Zeitschrift.

The State has recently appropriated $25,000 for the erection of a new building for the chemical and mining laboratories. This building is now completed. Is is 160 feet long in front and 80 feet deep in the central portion. It is two stories high above the basement. The upper floor is devoted to the chemical department exclusively. The first floor is occupied by the mining department and the department of agricultural chemistry.

ZOOLOGY AND COMPARATIVE ANATOMY.

PROFESSOR TUTTLE.

The work of the department comprises the study of animal life alike from the anatomical and the physiological aspect. The department is now equipped with the necessary collections, preparations, and apparatus for thorough and efficient study of the organization of representatives of each of the leading groups of the animal kingdom, and particularly for work in the physiological anatomy of the higher animals, in histology, and in practical and experimental physiology.

Members of the freshman class (in all courses except the agricultural) receive during the first two terms of the year instruction in this department in the elements of anatomy and physiology. It is the object of this instruction to impart to these students such general knowledge of the structure and functions of their own bodies as will serve as a guide to their maintenance in a state of health and usefulness, as well as to direct their attention to the phenomena of life as manifested in an organism, which, while it is the most complex, is at the same time the most familiar of living things. Martin's *Human Body* (briefer edition) is used as a text-book, accompanied by lectures, and by anatomical, histological, and physiological demonstrations. The third term in the freshman year is devoted to a brief comparative study of the organization of the domestic animals and other closely allied forms, lectures and demonstrations forming the means of instruction. This year's work forms a part of the second year of the shorter course in agriculture.

Zoology forms a portion of the work required in the sophomore year of all candidates for bachelor's degree. Instruction in this subject is given by means of lectures, accompanied by demonstrations and laboratory exercises. The object of this instruction is to impart to the student a clear conception of the animal kingdom as a whole, together with such practical familiarity with the members of its more important divisions as the time allotted will permit; to illustrate the methods and object of classification, and to give some insight into the principles which underlie all discussions of the phenomena of animal life. All the classes of the animal kingdom (as well as the orders of the more important classes) receive consideration, but the larger portion of the student's attention is directed to the classes and orders of the invertebrata, partly because they include those forms least likely to be otherwise made the subjects of study, and partly because of the larger amount of time given to the vertebrata in the advanced work of the department. The lectures upon zoology form part of the instruction given in the second year of the shorter course in agriculture.

In addition to the prescribed work above indicated, candidates for the degree of bachelor of science have open to their election at the beginning of the sophomore and during subsequent years, advanced work in this department. The first year of this work, done chiefly in the dissecting-room and the laboratory, directed by weekly lectures and supplemented by collateral reading, is devoted mainly to the practical study of physiology with its necessary adjuncts of histology and physiological anatomy. It has for its object, to prepare the student for the intelligent study of the breeding, care, and treatment of the domestic animals, to lay the foundations for the study of medicine, both human and veterinary, and to give to the general student a clear conception of the intimate structures and activities of the living body. It is required of juniors in agriculture, and is elective for seniors in the courses in arts and philosophy.

But one other institution in the west offers to undergraduates facilities equal to those afforded here, in this work. A few words, therefore, concerning the equipment of the department will not be out of place.

The new dissecting-room is large, convenient and well-lighted, and is amply supplied with all necessary material and appliances. The work done in this place is confined to the practical study of the anatomy of the lower animals (the human body not being dissected here); students looking to the medical profession can, however, acquire an experience in anatomical manipulation and a knowledge of the normal appearance of organs that will prove of great future service.

The laboratory is excellently equipped for the study of histology and for practical histological work. It is abundantly provided with all necessary reagents for the hardening and preservation of the various tissues and organs of animals, and with injection apparatus, freezing and imbedding microtomes, etc., of the most recent and improved patterns. Each student is supplied with an excellent microscope (with powers ranging from sixty to four hundred diameters), and with the necessary materials and apparatus for the staining and mounting of preparations, and is required to familiarize himself with these processes by repeated practice, as well as to acquire a knowledge of the characteristics of tissues and the structure of organs by their direct and continued study. In the course of the year each student prepares for himself a series of mounted sections of permanent value.

The appliances of the laboratory for practical and experimental work in physiology have recently been greatly increased. In addition to a full supply of the chemical apparatus and reagents necessary for the examination of food-stuffs, digestion-products, the blood, the secretions, etc., there have been provided a number of the most important pieces of apparatus used for the demonstration and study of the physical and mechanical processes of the body. Among these may be mentioned appliances for the registration of phenomena by the graphic method, such as a revolving-cylinder with Foucault's regulator; a polygraph for projection; an excellent pendulum myograph with the accompanying moist-chamber, electric signal, and chronograph, recording one hundred vibrations per second; Mosso's apparatus for the study of the variations of blood-pressure in the human body; recording manometers; sphygmograph and cardiograph (recording); sets of Marey's tambours, etc. Further additions in this direction will constantly be made.

The following hand-books are required by the student during the first year's work in this laboratory:

Practical Physiology (Foster and Langley).

Elements of Histology (Klein).

A Text-book of Physiology (Foster).

Students also have access to a collection of standard works, belonging to the department, and to the private library of the professor in charge.

The farther advanced work of this department, open to those who (in addition to the prescribed work in zoology of the sophomore year) have completed the first year's work above described, deals with the phenomena of animal life from the morphological rather than the physiological side, and is intended chiefly to meet the wants of those who expect, as teachers or in other capacities, to devote a portion at least of their lives to work in biological science. While the work of each student will be arranged in great measure in accordance with his individual aptitude and purposes, all will receive special training in microscopical manipulation and in the more elaborate processes of histological technique, and are expected to devote a large portion of their time to histological and embryological research. Lectures will be given each year upon one of the great divisions of the vertebrata, in which the organization, development and classification of its members are discussed; upon the comparative anatomy and histology of the apparatus of one or another of the principal animal functions; or upon some question in general morphology or philosophic zoology.

A tabular statement of the work is appended.

Required.

Freshman Year.

ANATOMY AND PHYSIOLOGY.

First Term—The Functions of Relation.
Second Term—The Functions of Organic Life.
Third Term—Vertebrate Anatomy.
Recitations (Martin's Human Body), Lectures and Demonstrations.

Sophomore Year.

ZOOLOGY.

First Term—Phases of Animal Life.
Second Term—The Natural Orders of Animals.
Third Term—Embryology and Classification.
Lectures, Demonstrations, and Laboratory Exercises.

ELECTIVE.

First Year.

Physiological Anatomy, Histology and Physiology of Mammals.
Laboratory work with Lectures.

Second Year.

Comparative Anatomy of Vertebrates.
Special Histological and Embryological Studies.
Laboratory work with Lectures.

GEOLOGY AND PALEONTOLOGY.

PROFESSOR ORTON.

The university is able to present unusual advantages for the study of geology. By act of the legislature it has been put in possession of all the collections made by the late state geological survey, and these collections have been supplemented by valuable additions of fossils and minerals from various sources. The state collection embraces a very complete representation of every geological formation shown in Ohio.

In the preparatory course one term is given to physical geography. In all of the college courses general geology is required in the first two terms of the junior year, and economic geology in the third term.

LeConte's *Elements of Geology* is made the basis of the instruction in the general course; economic geology is taught by lectures.

Students desiring to pursue geology further can elect it as one of their studies throughout the senior year. In this year, particular attention will be given to the geology and paleontology of Ohio, for the illustration of which subjects the museum affords ample materials. These subjects will be taught by lectures, by practical work in the museum, and as far as possible by field practice.

Text-Books and Works of Reference—LeConte's Elements of Geology, Dana's Manual of Geology, Lyell's Principles of Geology, Nicholson's Manual of Paleontology, Geological Reports of Ohio and of other states.

AGRICULTURE AND VETERINARY SCIENCE.

Professor Townshend.

The university recognizes its obligations, imposed in the terms of the grant on which it is founded, to the great industrial interests of agriculture. This obligation it aims to meet in various ways. It fixes its standard of admission so that students may enter its classes from the better classes of common schools. It provides for thorough instruction in the branches of science on which agriculture depends. It has established a professorship of theoretical and applied agriculture. It has established a professorship of horticulture and botany. It has laid down a special course leading to the degree of bachelor of agriculture. It has instituted courses of lectures in the sciences relating to agriculture and in theoretical agriculture, to which the farmers of the state are invited without charge.

While it is believed that the varied and complex questions with which the farmer has to deal, justify and require, for their most successful treatment, the extended and thorough courses of study necessary for the degree of bachelor of agriculture, it is still recognized that comparatively few will return from a six years course of study to the farm again, and, therefore, all possible advantages are offered to young men from the country who enter the institution for a shorter time. The work of the department of agriculture is shaped so as to give to this class as large a measure of service as possible for whatever time they are on college ground.

There are three years of work provided for the student in the department of agriculture. In the first year, soils are made a subject of examination, their geological relations and origin are explained, their composition is shown, and how it is determined; the special adaptations of soils to particular crops and modes of culture are shown, and how to increase or restore exhausted fertility; the management of pastures and meadows; the character and value of the different grasses, clovers and other forage plants; the culture of field crops, such as corn, wheat, oats, barley, rye, potatoes, etc.; also the value and application of animal manures, marl, gypsum, wood-ashes, lime, superphosphate, guano, and city sewage.

The work named above occupies the first and second terms. During the remainder of the year the following subjects are treated: work of the farm and improvements; drainage, draining tools, and the manufacture of drain-tiles; irrigation, its value and methods; farm roads and how to make them; fences, material, construction, and cost; rural architecture, applied to the erection of farm-houses, barns, stables, etc.; farm machinery.

The second year is mainly spent on the following topics: The natural history, description and adaptation of the various domestic animals—horse-training, cattle feeding, dairy management, wool-growing, etc.

The work of the third year is spent on the general subject of veterinary science. The range of instruction can be learned from the topics named below: general principles, causes, symptoms, elements of disease; classification of diseases, principles of treatment, and remedial agents, particular diseases and operations. These are carefully studied, and, so far as opportunity can be obtained, diseases are treated, and operations made, under inspection of the class.

By reference to another page it will be seen that a shorter course in agriculture has been arranged for the benefit of students whose time is limited.

HORTICULTURE AND BOTANY.

PROFESSOR LAZENBY.

The instruction in botany begins with the first year of the preparatory course, one term of which is devoted to structural and systematic botany. Further instruction is given in each of the following subjects: economic botany, vegetable physiology, vegetable histology, gramineæ, compositæ, and other special groups; ferns and fungi. Their arrangement, as regards the collegiate terms and years, is seen in the tabulated statement of the different courses of study.

The instruction is given by lectures in connection with laboratory practice, supplemented by field-work or class excursions.

The practical bearings of the science are made prominent in all the instruction given. In fungi, special study is made of those forms producing rust, mildew, blight, etc., which prove so destructive to cultivated plants.

In economic botany, besides a study of the special characteristics, geographical distribution, and distinctive properties of all the prominent natural orders, the history, uses, and importance of the different economic species, included in their orders, are fully considered.

The study of horticulture comprises lectures and recitations in the class-room, supplemented by observation and practice in the gardens and orchards. It is treated as an art based on science. The instruction continues throughout the year. The first term is devoted to a study of the general principles of horticulture and fruit culture. Under the first general subject the following are among the topics considered: horticulture, as a profession, its relation to science; location for horticultural work; implements, fertilizers, draining and irrigation, weeds and insects, management of help, marketing, etc.

The course in fruit culture embraces a study of the origin, history, methods of propagation, pruning and training, harvesting and marketing, insect enemies, diseases and varieties of both the small and large fruits.

In arboriculture and forestry, special attention is given to the influence of forests upon climate, the value of trees for timber and ornament, the best methods of culture, and a history of different varieties.

The instruction in vegetable culture includes kitchen and market gardening and seed-growing. Among the subjects considered are: location of the garden, laying out ground, draining, special preparation of soil, irrigation, management of composts, commercial fertilizers, implements. selection of seed, construction and management of green-houses, hot-beds, cold-frames; special garden crops, history, cultivation and varieties of each; growing seed for home use and for market; the family kitchen garden, etc. In connection with the lectures, experiments, such as testing the vitality and germinating power of different seeds, are conducted in the laboratory.

The third term is devoted to practical floriculture and landscape gardening. The general subject is divided into the following topics: window-gardening, general management of house-plants, hanging-baskets, climbing vines, flowering bulbs, ferneries, Wardian cases, etc.; out-door flower-gardening, commercial flower-gardening, lawns, walks and drives, ornamental shrubs and trees. A well-stocked green-house, flower-beds in the borders, and a considerable collection of ornamental shrubs and trees on the college grounds afford valuable means of illustration in the study of the above subjects.

MATHEMATICS.

PROFESSOR McFARLAND.

The preparatory department includes algebra, geometry, and plane trigonometry. In the freshman year the subjects of spherical and analytical trigonometry, and higher algebra are taken up.

In the engineering courses, analytical geometry, differential calculus, and integral calculus are required in the sophomore year. They are elective studies in the same year of the bachelor of science course.

CIVIL ENGINEERING.

PROFESSOR McFARLAND.

The order of studies in this department can be learned from the schedule which exhibits the course required for the degree of civil engineer.

Text-books—The works of Loomis on Algebra, Geometry, and Astronomy. In parts of the course, works by Davies, Warren, Church, Gillespie, Mahan, Haupt, Worthen, and others, are used.

In addition to the use and study of the text-books, the students are taught and practiced in the use of various astronomical and engineering instruments—the level, the transit, the plane-table, the sextant, the globes. They have practical field-work throughout the year, except when the inclemency of the weather does not admit of it. The work consists in taking differences of level, running lines, measuring horizontical and vertical angles, determining the variation of the magnetic needle, finding the latitude of the pole-star and by meridian latitudes of the sun; in fine, every variety of appropriate work which can be executed, is regularly, systematically and thoroughly done.

MECHANICAL ENGINEERING.

PROFESSOR ROBINSON.

This course is intended for those who desire to prepare themselves either for the profession of mechanical engineering, for superintending the construction of machinery, or for managing machinery in manufacturing establishments. In it instruction in principles is combined with practice. The former is mostly given by lectures, while the latter is confined to the mechanical laboratory.

The course includes the following special studies, all of which must be passed before taking the degree.

MECHANISM AND DRAWING—ONE YEAR.

Principles of Mechanism.
Machine Designing and Drawing.
Machine Drawing.

PRIME MOVERS AND MACHINERY—ONE YEAR.

Thermodynamics and Transmission of Fluids.
Prime movers.
Machinery and Mill-work.
Besides the above there will be required for graduation:
Three terms of Elementary Laboratory Practice.
Two terms of advanced Laboratory Practice.
One term of Machine Construction and Laboratory.
One term of Strength of Materials and Hydraulics.

EXPLANATION OF THE COURSE.

In the principles of mechanism are studied the parts of machinery by pairs; or, elementary combinations of mechanism. In this the form and arrangement of the parts necessary for securing the desired modification of motion is sought.

In the machine designing the student takes up some problem in the shape of a particular machine for a special purpose. The forms, dimensions and arrangements of the parts are decided upon, and then a drawing is carefully made of the whole. Detail drawings to regulation size are then made, and finished in shade lines, as is done in the best shops. The quality of these drawings is sufficient for the requirements of photo-engravings for illustrations upon circulars.

In thermodynamics are studied the principles which form the groundwork of all heat engines.

In prime movers are studied all kinds of heat engines, such as steam engines, hot-air engines, etc, and also wind-wheels and water-wheels.

Mill-work and machinery takes up valve-gears, fly-wheels, governors, efficiency of parts of machines, strength of parts, etc.

The mechanical laboratory is intended for acquainting the student with the materials used in machine construction; with the forms customary in machinery; to impart a degree of skill in the use of tools, and a knowledge of the operations and practices of shops. The sudent uses most of the ordinary tools of the machine shop, such as the vise, hand-lathe, drilling-machine, engine-lathe, milling and shaping-machine and planer; also, the forge and anvil, the iron cupola and brass furnace and pattern-makers' tools.

The first term's work consists of the actual use of tools in executing a set of forms chosen with a view to supplying the greatest possible amount of practical instruction for the time. This is combined with weekly lectures on tools and their use.

The second term carries the above practice to the fitting together of parts. This is combined with weekly exercises in designing and drawing of machine elements such as cranks, bearing-boxes, stub-ends, etc.

The third term is fully occupied in fitting parts carefully together, as in the joints of machinery, and in finishing the surfaces by scraping, polishing, burnishing, etc. This is in combination with a weekly exercise in the invention of simple machines for specific operations, such as bending wire staples, cutting wooden combs, etc.

The fourth term of mechanical laboratory practice is constructive. It is taken in connection with the principles of mechanism. In the latter, problems in mechanism are worked out, forms and dimensions assigned to the parts, and then these are executed in the laboratory, resulting in models of mechanical movements for the cabinet.

Projects will be assigned to the student, from time to time, on topics connected with his studies, requiring him to take indicator cards, test the efficiency of boilers, visiting manufacturing establishments, etc., and report. Such reports are neatly made out on the regulation papers of the department. These are taken, in part, for the examinations, and retained for the cabinet.

Text-Books and Works of Reference—Rankine's Steam Engine, and Machinery and Mill-work; Weisbach's Mechanics; Willis's Principles of Mechanism; Belanger's Cinematique; Zenner's Traite de la Chaleur; Neville's Hydraulics; Clausius and McCullough on Heat; Seller's Manual of Machine Tools; Shelley's Workshop; Unwin's Elements of Machine Design; Nicholson on Files and Filing.

MINING AND METALLURGY.

Professor Lord.

The course in mining engineering secures to the student careful instruction, with ample allowance of time, in the three fundamental branches of the art—mining, preparation of the ore, and metallurgical treatment. These courses will comprise lectures, the study of text-books, preparation of maps, drawings, and sections, and visits to existing works, with careful reports upon them, and practice in estimates and designs.

For assaying there is a full equipment of furnaces and ores for the dry assay, and the wet methods are taught in the chemical laboratory.

An ample collection of minerals is provided, comprising all species with which the mining engineer should be familiar, and to this the students have constant and familiar access.

Crystallography is taught by the aid of a complete collection of large wood models, made especially for the department, and containing every common form.

Text-Books and Books of Reference. — Dana's Mineralogy, Egleston's Crystallographic Tables, Callon's Mining, Andre's Mining and Mining Machinery, Phillips's Metallurgy, Egleston's Metallurgical Tables, Rittenger's Aufbereitung, Gætschmann's Aufbereitung, Bodemann & Kerl's Assaying, Mitchell's Assaying, Von Cotta's Ore Deposits.

DRAWING AND DESIGN.

In mechanical drawing instruction is given in elementary projection drawing, and to any special student who may desire it, advanced mechanical drawing, such as architectural or other constructive drawing.

In free-hand drawing, instruction is given in elementary drawing. Outline drawing from the flat copy and from models, and in shading from models and casts, water-color painting from groups of objects, oil painting from the copy and groups in still-life, crayon portraits from copy or photograph, and modeling in clay, are also taught.

HISTORY AND ENGLISH.

History.—One term's work in United States history, and the same amount in general history is required of every pupil in the preparatory course.

For candidates for the degree of bachelor of philosophy there is an advanced course, extending through the junior and senior years. The arrangement of the work in this course is as follows:

Junior Year.

The Middle Ages, Hallam. Three hours per week for a half year.

Modern History of Europe to 1815. Three hours per week for a half year.

Senior Year.

History of the English Constitution. Three hours per week for a half year.

History of the XIX. Century. Three hours per week for a half year.

The paramount aim of the instruction in this department is to teach the student how to study history, past and present, intelligently for himself. To this end, an effort is made from the first to prevent the pupil from looking upon any occurrence as an isolated one; he is encouraged to inquire into the relations, the environment of every event. In doing this, he is taking the first step towards that breadth of view, the attainment of which is the most difficult and yet the most necessary part of the study of history. Naturally, no method subserves so well this particular purpose as does the catechetical, and hence, it is, in the beginning, adopted. The habit of investigation thus formed leads the learner, later in his course, to the library; here he is familiarized with the use of books, sent to the sources of knowledge, so far as they are available, taught to weigh authorities, to sift evidence, and to form judgments of his own. To these conclusions he gives expression orally and in formal thesis.

English.—One term's work in elementary rhetoric is required in the preparatory course.

In the courses of philosophy and arts, the work extends through three years, and is arranged as follows:

Sophomore Year.

First Term—Principles of Rhetoric, A. S. Hill, 2.

Second Term—Principles of Rhetoric, A. S. Hill, 2.

Third Term—Language and the Study of Language, Whitney, 2.

This English of the Sophomore year is likewise required in the course for the degree of Bachelor of Science.

Junior Year.

First Term—Anglo Saxon, March, 2.

Second Term—Chaucer (Clarendon Press edition, Prologue, etc.), 2.

Third Term—Shakespeare, 2.

Senior Year.

English Literature. Two hours per week through the year.

Rhetoric.—The first term's work is given to diction and construction, in general; the second term's to the study of the special departments of composition, description, narration and exposition. The work, from its nature, embraces three processes: the acquirement of general principles, the study of models, the writing of studies in the various departments.

Language.—Theories of the genesis of language are discussed, and its method of growth, as illustrated in the Anglo-Saxon and the early English, is unfolded.

Literature.—The study in this department has a three-fold purpose, linguistic, historic and æsthetic. It is based upon the critical reading of master-pieces in our language, from the best texts available. Supplementary to this is the study of minor authors and that of "the times," in so far as they contribute to the development of literary history. Last, is the study of authoritative critics, and the writing of critiques.

GERMAN AND FRENCH.

MISS WILLIAMS.

A two years' course in each of the two languages is provided for. In the beginning of either course the student attends mainly to grammatical doctrine and literal versions, and afterwards to the literary contents and characteristics of what he reads. Lectures upon the respective literatures run through the second year of the course.

GERMAN.

First Year.

First and Second Terms—Cook's Otto's German Grammar.
Third Term—Schiller's Der Neffe als Onkel—Composition.

Second Year.

First Term—Schiller's Maria Stuart; Composition.
Second Term—Lessing's Nathan der Weise; Literature.
Third Term—Goethe's Iphigenie; Literature.

FRENCH.

First Year.

First Term—Duffet: French Grammar and Exercises.
Second Term—Grammar continued; Masson's French Classics, vol. 5.
Third Term—French Classics continued.

Second Year.

First Term—Moliere; Le Misanthrope.
Second Term—Corneille: Cinna; Literature.
Third Term—Racine: Athalie; Composition.

LATIN.

PROFESSOR DERBY.

Latin is a required study for all regular students in the school of arts and philosophy.

The course of instruction extends through the preparatory course, and the first three years of the college curriculum.

The exercises in this department occur daily in the preparatory years, four times a week in the sophomore year, and three times a week in the freshman and junior years.

The subjects are taught by means of text-books or lectures, and illustrated by books of reference, maps, and plans. Topics for investigation and an oral, or written, report of results are assigned to members of the advanced classes. By such exercises an attempt is made to familiarize the student with some of the sources of our knowledge of classical antiquity and with approved methods of studying them.

The main purpose in the earlier portion of the course is to give each student a ready command of the forms of the language, with such knowledge of its vocabulary and ordinary constructions as will enable him in the latter period of his study to pay attention chiefly to the literature, polity and life of the Roman people.

It is believed that, by this plan, a good measure of the intellectual discipline gained in linguistic study may be secured, together with that insight into the elements of ancient civilization which is indispensable to the proper understanding of the history, philosophy, politics, and law of modern times.

A knowledge of the literature and collective life of antiquity is of greater worth to most students than that familiarity with the minutiæ of grammar and linguistics which may be necessary for the teacher of languages. The range and order of instruction are shown in the tabular view which follows:

The requirements in Latin for admission to college embrace Latin Grammar and Composition, three books of Cæsar, five orations of Cicero, and five books of Virgil.

PREPARATORY COURSE.

First Year.

First Term—Latin Lessons: Allen & Greenough's Grammar.
Second Term—Lessons; Cæsar, *De Bello Gallico.*
Third Term—Cæsar: Roman Antiquities.

Second Year.

First Term—Cicero, *In Catilinam;* Latin Composition.
Second Term—Cicero: Virgil's Æneid begun; Latin Composition.
Third Term—Virgil: Latin Prosody.

COLLEGE COURSE.

Freshman Year.

First Term—Livy, Book XXI.; Latin Composition.
Second Term—Livy; Latin Composition.
Third Term—Horace, *Odes:* Latin Composition.

Sophomore Year.

First Term—Tacitus, *History;* Roman History.
Second Term—Plautus, *Captivi;* Roman History.
Third Term—Cicero, *De Officiis;* Latin Etymology.

Junior Year.

First Term—Juvenal; Antiquities.
Second Term—Cicero's Letters; Roman Law.
Third Term—Quintilian; Latin Literature.

GREEK.

PROFESSOR SMITH.

The course of Greek comprises four years of college work, arranged as follows:

Freshman Year.

First Term—Goodwin's Grammar, and White's Lessons.
Second Term—Grammar and Lessons; Xenophon's *Anabasis,* Book I.
Third Term—*Anabasis,* Books II and III; Greek History.

Sophomore Year.

First Term—Xenophon's *Memorabilia;* Greek Prose Composition.
Second Term—Herodotus, Selections; Greek History.
Third Term—Homer, *Odyssey;* Greek Literature.

Junior Year.

First Term—Thucydides, Books I and II; Greek Literature.
Second Term—Euripides *Medea;* The Greek Drama.
Third Term—Demosthenes, *Olynthiacs;* The Attic Orators.

Senior Year.

First Term—Homers' *Iliad;* Epic Poetry.
Second Term—Sophocles, *Antigone;* Greek Antiquities.
Third Term—Pindar, *Selections;* Greek Etymology.

Instruction by means of text-books, lectures and works of reference throughout the entire course.

PHILOSOPHY AND POLITICAL SCIENCE.

PRESIDENT SCOTT.

I. PHILOSOPHY. The work in philosophy extends through the junior and senior years of the courses in arts and philosophy.

Junior.

First Term—Psychology, Porter, 3.
Second Term—Psychology, Porter, 3.
Third Term—Metaphysics, 3.

Senior.

First Term—Ethics, Janet, 3.
Logic, 2.
Second Term—Logic, Jevons, 2.
Third Term—History of Philosophy, Schwegler, 3.

In the general course in science, psychology and metaphysics have three hours a week through the senior year, and the other subjects are elective.

During the first two terms of psychological study the subjects of consciousness, perception, memory, imagination, the several processes of thought, and the relations of mind and body are studied and discussed. The best authorities are consulted and essays are written by the class. It is the constant aim to lead the student, as fast as possible, to dealing at first hand with the profound and interesting problems of mind. For this end the conversational method has been found most effective, and is chiefly relied on in teaching this as well as the other subjects of the department.

In the study of metaphysics the fourth part of Porter's Elements of Intellectual Science is used as a guide. The nature, validity and source of the fundamental conceptions of human thought are investigated, and their relations to the various departments of knowledge receive careful attention.

The term in ethics is devoted to the study of Janet's Theory of Morals. The prevailing theories of morals are reviewed and an effort is made to form a critical estimate of their truth and value. The nature of conscience, the ideas of right and obligation, their sources and their authority, and the relation of ethics, on the one hand, to the intellectual, and on the other, to the practical life, are successively taken up and considered.

Logic is studied two hours a week in the first and second terms of the senior year; Jevons' Elements of Logic is followed and copious examples are introduced. The diligent student may, even in the brief time allotted to the study, obtain a fair elementary knowledge of the subject, and thus open the way for an intelligent direction of his powers in all his intellectual pursuits.

The work in this field is completed by a term in the history of philosophy. With Schwegler as a text-book, the first names in the history of thought are studied, their relations developed, and the progress ot opinion traced through its successive stages. The present state of psychology, ethics, and metaphysics, is reviewed in their relations to the past, and their significance and tendencies are investigated under the guidance of history.

II. Political Science. The attention given to this important class of subjects is at present somewhat limited, but serves to acquaint the student with the principles of two capital divisions. The work is confined to the senior year. Constitutional law is taught two hours a week during the second and third terms, and political economy two hours a week throughout the year. Laughlin's new edition of Mill is used as a text-book in political economy, and the doctrines which it upholds are, in the main, adopted. The student, however, is directed to other authorities, and the views of leading writers on disputed questions are examined. The primary purpose is to reach a clear conception of the elementary principles of the science, and of those conditions in nature and society from which they necessarily arise. As a means of promoting this purpose, themes and discussions are freely employed.

In constitutional law Cooley's Principles is the basis of instruction. An attempt is made to impart, first, a knowledge of the idea and scope of constitutional law, and, secondly, a knowledge of the constitution of the United States as the particular example with which it is most important for the student to become acquainted. The light of historical facts is constantly sought to make clear the original intent and the later construction of its provisions. Various authorities are consulted and themes are written as further means of rendering the student familiar with the more important features of the subject.

In all these subjects occasional lectures are delivered by the professor in charge.

MILITARY SCIENCE AND TACTICS.

Lieutenant Rlocksom.

The officer in charge of this department is a graduate of West Point, and has been detailed for this service by the general government. All students, except juniors, seniors and sophomores, and such others as can show reasonable ground for exemption, are required to take part in the drill. This exercise occupies about an hour five each week.

AGRICULTURAL EXPERIMENT STATION.

Professor Lazenby, *Director.*

The state has established an agricultural experiment station, which is now located at the university. The station is sustained by appropriations from the state.

The experiments and investigations will be carried on, both in the field and in the laboratory, and will deal with the following great agricultural interests, viz.:

(1) grain raising; (2) stock farming and dairy husbandry; (3) fruit and vegetable culture; (4) forestry.

The station is prepared to test varieties; to analyze and test fertilizers and manures; to examine seeds that are suspected of being unsound or adulterated; to identify and name weeds and other plants; to investigate and describe, when known, the habits of injurious and beneficial insects; and other work of a similar character that properly comes within its province.

STATE METEOROLOGICAL BUREAU.

PROFESSOR MENDENHALL, *Director*.

In 1882 the legislature established a state meteorological bureau, of which the professor of physics is the director. There is provided at the state university a full equipment of standard instruments for meteorological observations. Corresponding equipments are also provided for voluntary observers throughout the state. At the present time the bureau receives regular reports from about forty stations.

GENERAL INFORMATION.

FOUNDATION.

The Ohio State University is founded on the congressional land grant of July, 1862. By that act a large amount of the public land was turned over to the several states, the proceeds of the sales to be devoted to the better education of the industrial classes. The share of each state was proportioned to its representation in the national legislature, and thus six hundred and thirty thousand acres came into the possession of Ohio. This munificent gift was unfortunately pressed for sale upon a market temporarily overstocked, and the state realized only fifty-four cents to the acre. The total amount of the sales ($342,450) was, however, put at interest, and when the institution was opened, in September, 1873, the principal and interest together constituted a productive fund of something over $500,000, which has since been increased to a small extent, until an annual income of about $33,000 has been reached.

The legislature having passed an act to authorize the several counties of the state to raise money to secure the location of the university, an offer of $300,000 from Franklin county was accepted by the board of trustees, and the university was permanently located at Columbus. The money furnished by Franklin county has been mainly expended in the three following items: 1. The purchase of a valuable farm of three hundred and thirty acres, within the corporate limits of the city of Columbus. 2. The erection of a spacious and elegant college building, and two dormitories for students. 3. The equipment of the various departments of instruction in the university.

The total value of endowment and property at the present time exceeds $1,000,000.

The chief object of the institution is specifically defined by the act of congress, on which its endowment is based, to be "the liberal and practical education of the industrial classes in the several pursuits and professions of life," while the inclusion of other scientific and classical studies, and of military tactics, is expressly provided for.

The trustees and faculty have endeavored to direct the policy of the university in accordance with these excellent provisions. While the subjects commonly included in college studies are here taught with efficiency and thoroughness, special provision has been made for extensive and practical instruction in the various branches of natural science and their application. The leading industries of the state—agriculture, mechanics, mining, and engineering—have each a separate department and a special course of study provided, while the sciences that underlie these arts form special departments, and are taught by extended courses in well equipped laboratories.

LOCATION.

The university grounds and buildings are situated within the corporate limits of the city of Columbus, three miles north of the state house. Two lines of street railroads reach the grounds. New students and strangers wishing to visit the institution, on their arrival at the union depot should take a white car going northward, at the north end of the tunnel on High street; or, if they wi h to reach the dormitories, they should take a green-line car at the same place.

ADMISSION.

I. To the Preparatory Department.

For admission to the preparatory department of the university, students must pass a satisfactory examination in the branches taught in the common schools, viz.: orthography, writing, grammar, geography, arithmetic, and algebra through simple equations.

The attention of those proposing to enter the university is especially directed to the terms above given. A competent knowledge of the common school branches is required. The university does not undertake to do the work which the common schools are able and willing to do, viz.: that of grounding the student in the elements of an English education. He must bring with him a fair measure of the training which these schools are prepared to give. If it be asked what is a competent knowledge of these branches, it may be answered that the canditate should certainly have knowledge enough of them to entitle him to a teacher's certificate from a county board of examiners.

Graduates of the high schools of the state are admitted to the preparatory department without examination. Applicants having a teacher's certificate of twelve months are also admitted without examination, except in algebra when this study is not included in the certificate.

Entrance examinations for 1885 will be held at the university, June 16 and 17, and September 16 and 17, 1884.

II. To the College Classes.

For admission to the freshman class of any course, the student must sustain examination in the studies of the preparatory department, that lead to this course. The preparatory department, as now constituted, agrees very well with the course of instruction in the better grade of high schools of the state.

Graduates of high schools of this state, in cities having a population of 5,000 or more, by the last census, and of such other high schools and academies of the state as give satisfactory evidence to the faculty of the efficiency of their courses of study, will, on presenting their diplomas, be admitted to the freshman class, in any course of study for which their previous high school work shall have fitted them.

Students who do not design to complete a regular course of instruction, are allowed to select such studies as they are prepared to carry on with profit to themselves and without detriment to the regular classes.

Students are admitted to advanced standing in any of the courses, on sustaining examination in the work required in the university for such standing.

Students entering from other colleges are required to bring certificates of honorable dismission.

The university is open to students of both sexes, but there are no buildings provided for the residence of young ladies on the university grounds. Boarding-places in respectable families are secured for such young ladies as enter the institution, but the faculty is not so situated that it can exercise supervision over their conduct outside of college hours. Parents who place their daughters in the university, should be well satisfied as to their discretion, or else should leave them under the care and control of the family with which they board.

REGISTRATION.

Students are required to register at the clerk's desk, in the office of the president, on the first day of each term. On registration the student will receive a card, which he must present to the committee of the school in which he belongs, in order to receive his class card. Students who fail to register on the day appointed must give a satisfactory reason for their delay, otherwise all absences will be charged against them from the beginning of the term.

EXPENSES.

I. COLLEGE DUES. *There is no charge for tuition in any department of the University;* but a charge of $5.00 a term, or $15.00 a year, is made against all students, under the head of incidental expenses, and advanced students in chemistry, agricultural chemistry, physics and physiology are required to pay fees to cover, in part, the cost of materials consumed, and the deterioration of the expensive instruments employed. The fee in the chemical laboratory is $10.00 per term, in the physical laboratory $7.00 per term, and in the physiological laboratory and that of agricultural chemistry, $8.00 per term. These dues are required at the opening of each term.

The payment of term bills is required of all students by the second Wednesday of each term, as the condition of remaining in the university.

II. BOARD. There are two dormitories on the grounds, provided for the use of students. The smaller of these affords unfurnished rooms, *rent free*, to such students as desire to board themselves, and thus to reduce their expenses to a minimum. Twenty students can be accommodated in the building, two students being assigned to each room. The expense of living in this way falls below $2.00 per week.

The larger dormitory can accommodate more than sixty students. It is, for the present, turned over to the university club, *rent free.* Board, furnished room, fuel, light, and washing are, at present prices, supplied for less than $3.25 per week. New students will not, however, be admitted to the club without special recommendation.

Boarding-clubs may also be organized in the neighborhood of the university, by students, in which expenses can be kept at $3.50 per week, at present prices.

Board, with furnished rooms, can be obtained in private families within convenient distances of the university, at rates varying from $3.50 to $5.00 per week. The ruling rate may be taken as $4.00 per week for young men, and $5.00 for young ladies.

A uniform has been adopted, with which all members of the military organization are required to provide themselves. The cost of the uniform is about $23.00.

SUMMARY.

The expense of a college year will include the following items, viz.:

College dues	$15 00	$15 00
Board, rooms, etc., at $3.00 per week	114 00 at $4.50	171 00
Total	$129 00	$186 00

This estimate provides for light and fuel, but does not include textbooks or charges for laboratory supplies. Students boarding themselves can reduce the lowest of these estimates at least $30.00—making a total of $100.

EMPLOYMENT.

There is a large amount of work on the university farm that can be performed to advantage by students, and for which they are paid at current rates for such labor. A number of students defray all their college expenses in this way. In the assigning of work preference is given to students in the department of agriculture, and to those who are ready to devote a certain number of hours each day to the task required. *The university does not guarantee work to all applicants.*

CLASSIFICATION OF STUDENTS.

The undergraduate students of the university are classified as follows:

(1.) Regular students.
(2.) Special students.
(3.) Regular preparatory students.
(4.) Irregular preparatory students.

The first division includes the four college classes; the second includes students that have attained college rank, by completing the preparatory course or its equivalent, but are now pursuing selected studies; the third includes students that are pursuing the regular preparatory course; and the fourth includes all students who do not belong to either of the first three.

The various departments of the university have been classified in four schools, designated as follows:

THE SCHOOL OF AGRICULTURE, including those studies which enter into the course leading to the degree of Bachelor of Agriculture.

THE SCHOOL OF ARTS AND PHILOSOPHY, including those studies which enter into the courses leading to the degrees of Bachelor of Arts and Bachelor of Philosophy.

THE SCHOOL OF SCIENCE, including those studies which enter into the course leading to the degree of Bachelor of Science.

THE SCHOOL OF ENGINEERING, including those studies which enter into the courses leading to the degrees of Civil Engineer, Mechanical Engineer, and Mining Engineer.

Each school is under the direction of a standing committee of the faculty, having power to act in all matters pertaining to the studies of students in such school, and in matters of minor discipline.

Every undergraduate student enters one of the above schools. In case of irregularity, he is assigned to that one in which the majority of his studies are found.

All students in each school are regarded as belonging to one of two groups; first, those whose purpose it is to enter upon one of the regular courses of study, with the expectation of taking its degree; second, those who come to the university for the purpose of pursuing some special study or line of work, and who do not expect to take a degree.

The courses of study leading to the various degrees having been arranged by the faculty in the order which they believe to be the best adapted to the general requirements of students, *all who do not belong to the second of the groups indicated*, will be required to enter upon the regular work of the college classes to which they belong, or in case of present irregularity to remove such irregularity as speedily as practicable in the manner prescribed by the committee of the school in which they are classed, and no such student will be allowed to take more or other than his regular studies without presenting a request with reason therefor to his committee, and receiving its consent. Such consent may be revoked at any time when it may seem advisable to do so.

Students belonging to the second group, viz.: those coming to the university for a limited time with the definite purpose of pursuing some special line of work, will in each case enter the school in which their proposed work is chiefly included, and shall lay before the committee a statement of the end in view, the studies proposed for the accomplishment of that end, and the probable period of residence.

Students pursuing particular lines of work shall, if they have attained college standing, be published as special students; if otherwise, as irregular preparatory.

While it will be the purpose of each committee, in accordance with the well-established policy of the university, to allow to such students full freedom in the selection of the branches which they desire to pursue, subject only to the necessary limitations that they are prepared to take up the branches they select and that such branches are in accordance with the end proposed, it is also their intention to hold these students as regularly to the performance of their accepted schemes of work as they do the members of the first group to their prescribed course of study; and they will refuse admission to this group to all of whose definiteness of purpose or fitness to undertake the work proposed they fail to receive satisfactory evidence.

ELECTIVES.

It will be observed that at the beginning of the sophomore year of the bachelor of science course an advanced course in science is to be selected from such branches as have been already studied in their elementary forms in either the freshman year or in the preparatory course. The choice at this time is therefore confined to the four following, viz.: botany, chemistry, mathematics, and anatomy and physiology.

At the beginning of the junior year the list of electives is extended by the addition of physics and vertebrate anatomy and physiology, and at the beginning of the senior year by the addition of paleontology, and also of philosophy and ethics.

In the senior year of the courses for the degrees of bachelor of arts and bachelor of philosophy, there is also an election. The student can choose from any of the sciences, the elements of which have been previously given.

EXAMINATIONS.

1. The standing of the students shall be reported at the end of each term as "passed with merit," "passed," "conditioned," or "failed;" such standing to be determined by examination, written wherever possible.

2. The expression "conditioned" signifies "subject to re-examination at the middle of the following term."

3. The regular work of each laboratory is regarded as the equivalent of five class-room exercises per week. Two consecutive hours daily in the art department is also so regarded.

4. No special or irregular student is allowed to take less than fifteen or more than eighteen hours per week of class-room work or its equivalent, and no student conditioned in any study will be permitted to take more than the regular work of his class the following term.

5. At the close of each term students must pass in examinations in studies, representing at least ten hours per week, in order to retain their connection with the university.

6. Students conditioned in studies representing ten hours per week, must pass satisfactory examinations in at least one-half of those studies before regaining their standing in college.

7. Students failing in examinations representing ten hours per week, forfeit their place in college thereby.

8. Students who fail in the term examinations, or in an examination for conditions, are required to take the study or studies in which they fail, on their occurrence in the following year, except when excused by the faculty.

9. Students failing on a re-examination for a condition, are dropped from that class, if a continuous one.

10. Absence from any examination is construed as a failure therein.

11. Students in any three-term class who fail to attain the grade "passed" at the end of more than one term, shall be required to repeat the work of the whole year, unless excused by the professor in charge; and the students in any two-term class who are reported as "failed" at the end of the second term, may be required by the professor in charge to repeat both terms' work.

Absences and Demerits.

1. Four demerit marks shall be recorded against a student for every unexcused absence from a class or from drill; two for every unexcused failure in recitation or in drill; and one for every unexcused tardiness; and other offenses shall be rated as the faculty shall from time to time determine.

2. When any student has received ten demerit marks he shall be admonished by the president.

3. When any student shall have received twenty demerit marks notice thereof shall be sent to his parent or guardian.

4. When any student has received forty demerit marks his connection with the university is thereby forfeited.

5. No account of demerits shall be continued longer than the close of the college year.

THE LIBRARY.

The library is still quite limited, but contains many valuable books, especially reference books, and books in science, history and philosophy. It is open daily and is in almost constant use by the students for reading and reference. The room is also supplied with leading periodicals, care being taken to select such as will afford to the student the freshest and ablest discussions on the subjects of current interest.

The legislature, at its recent session, appropriated $5,000 for the removal and increase of the library, and it is expected that by the opening of the next year this important adjunct of the university will be greatly improved. Additions will be made to the various departments of science, history, literature, and philosophy, and the whole will be placed in a large and well-lighted room especially fitted up to receive it.

THE LABORATORIES.

Much of the work in science is performed in laboratories by the students themselves. To promote this, which is now universally recognized as the true method of teaching science, the trustees and faculty have been at great expense and pains to provide the best possible facilities.

The chemical, physical and mechanical laboratories are open on Monday and Tuesday afternoons, and the metallurgical, and physiological laboratories are open Thursday and Friday afternoons.

RHETORICAL TRAINING.

The students in the advanced college classes meet weekly for rhetorical exercises. These exercises consist of essays and orations which have been criticised in manuscript by the professor in charge. These exercises are additional to the class-room work in the study of rhetoric, which extends through the sophomore year of all the general courses.

RELIGIOUS SERVICES.

Daily prayers are held in the university lecture-room, at which the attendance of all students is required, except when excused for special reasons. The services are usually conducted by the president, but sometimes by other members of the faculty and by visiting clergymen of various denominations.

LITERARY SOCIETIES.

The Alcyone and Horton Literary Societies have commodious and well-furnished halls in the main building. A hall has also been recently assigned to the Browning Literary Society, which is composed of young ladies. All these societies meet weekly. The membership is large, and the work is vigorous and effective, affording to the student a very desirable training in composition, public speaking, and parliamentary order. Each society hold a public anniversary, and the Alcyone and the Horton holds an annual contest.

SCIENTIFIC ASSOCIATIONS.

The Kirtland Natural History Society is composed principally of the students in the agricultural department. The object of the society is "to develop a faculty of observation and cultivate the powers of original research; to form clear and accurate habits of thought and expression by reading, writing, and discussion; to make a systematic stndy of the sciences most nearly related to agriculture; and to assist in promoting the agricultural department of the university by collecting material illustrative of its various branches."

The Engineering Association is composed of students in the engineering courses, and its object is the investigation and discussion of topics in mechanical, mining, and civil engineering.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

A branch of this association has recently been organized, and has rented and furnished a pleasant room in which its meetings are held.

FIFTEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

HIO STATE UNIVERSITY,

TO THE

GOVERNOR OF THE STATE OF OHIO,

FOR THE YEAR 1885.

COLUMBUS:
THE WESTBOTE CO., STATE PRINTERS.
1886.

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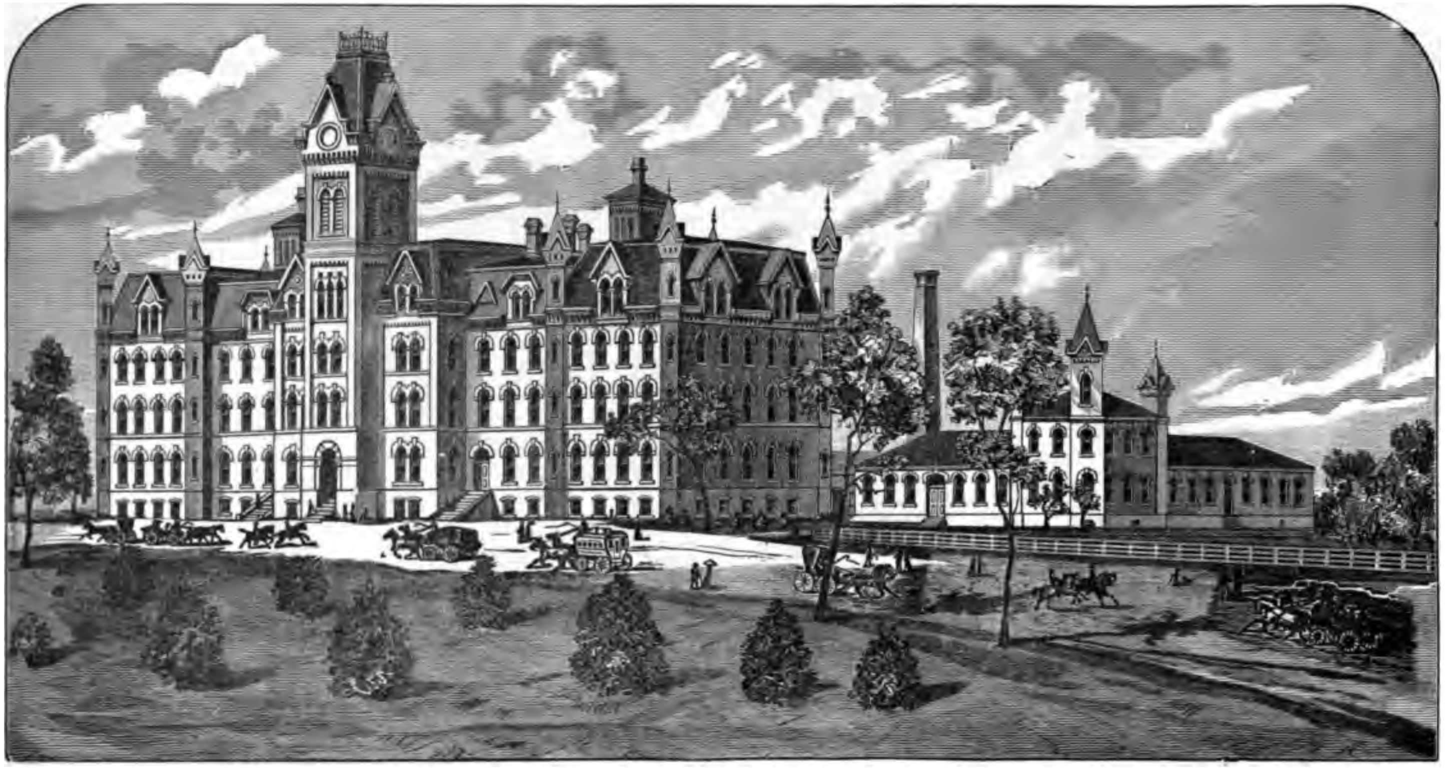

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OHIO STATE UNIVERSITY.

1885-1886.

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Professor of History and English Language and Literature.—University Grounds.

AUGUSTUS P. BLOCKSOM,
First Lieutenant 6th Cavalry, U. S. A., Professor of Military Science and Tactics, and Assistant Professor of Mathematics.—Park Hotel.

H. J. DETMERS, V. S.,
Professor of Veterinary Surgery.

C. NEWTON BROWN,
Assistant Professor of Civil Engineering.

ALICE K. WILLIAMS,
Instructor in the French and German Languages.—Woodruff Avenue.

COLUMBUS, OHIO, *November* 17, 1885.

To His Excellency, Governor GEORGE HOADLY :

SIR : I have the honor to transmit herewith the fifteenth annual report of the board of trustees of the Ohio State University.

Very respectfully,
Your obedient servant,
ALEXIS COPE,
Secretary of Board.

REPORT OF TRUSTEES.

Office of the Board of Trustees, Ohio State University,
Columbus, Ohio, *November* 15, 1885.

Hon. George Hoadly, *Governor of Ohio:*

Sir: In compliance with law, the board of trustees respectfully submit the fifteenth annual report of the Ohio State University. Its condition, as set forth in the accompanying reports of the president and faculty, shows a marked improvement and a steady progress and expansion that, with proper financial support, will enable it to maintain its high rank among the educational institutions of the country. With an able and strong faculty, fully devoted to its interests, and zealous for its material advancement, and with an increasing number of students who keenly appreciate the opportunities it affords, the trustees look forward hopefully to the time when the excellence of its work shall be appreciated in all the departments of higher education, and it shall exercise a commanding influence in the intellectual life of the people of the state.

The liberal appropriations made by the last general assembly have enabled the trustees to employ additional professors and assistants to add materially to the equipment of the laboratories, to provide additional courses of instruction, and thereby to greatly increase its usefulness. It is to be hoped that the same liberal policy will be continued.

The teaching force of the university consists of 16 professors, 1 assistant professor, 1 instructor, 1 lecturer, and 6 assistants. Their position and compensation are shown in another part of this report.

The number of students in attendance during the university year ending with the last commencement in June, 1885, was as follows: Fall term, 289; Winter term, 250; Spring term, 213. The number enrolled at the present term, which begun September 16, 1885, is 313, an increase over the Fall term of last year of 24. The number of students in the several departments and classes, and the course of instruction pursued in each are shown in the reports of the president and other members of the faculty.

Upon the recommendation of the faculty, the following degrees were conferred upon the persons named at the close of the last term:

William Preston Bartley, Degree of B. Ag.
Clarence Creesy Brown, Degree of B. Sc.
William Henry Harrison, Degree of C. E.
Ellis Lovejoy, Degree of E. M.
William Rufus Malone, Degree of B. A.
Charles Allen Marple, Degree of B. Sc.
Milvin Noble Mix, Degree of B. Ph.
William Lincoln Peters, Degree of Mech. Eng.
Charles Vernon Pleukarp, Degree of Mech. Eng.
Willis Jay Root, Degree of E. M.

Edward Louis Tascher Schaub, Degree of Mech. Eng.
Charles Felton Scott, Degree of B. A.
Mary Odella Scott, Degree of B. A.
Francis Asbury Taylor, Degree of B. A.
George Ransom Twiss, Degree of B. Sc.
Philo Christopher Smith, Degree of B. Sc.

The report of the treasurer filed herewith presents in detail the financial operations of the university during the last fiscal year and the condition of the endowment and other funds. It shows the total receipts, including balance in his hands November 15, 1884, to be $46,194.51, and his disbursements to be $44,776.99, leaving balance in Treasurer's hands November 15, 1885, $1,417.52.

The disbursements of the state appropriations will be found in the report of the auditor of state.

The part of the "irreducible debt" of the state, which forms the permanent endowment of the university, is shown by the treasurer's report to be $537,841.46, upon which the annual income is $32,270.48.

The receipts from sales of Virginia military lands during the past year have been $1,679.07.

The total receipts from this source to date are $59.200.88; expenses, 20,856.97; net receipts, $38.343.91, of which $13,665.84 has been placed to the credit of the endowment fund (so-called); $18,042.21 has been expended on the residences of professors, leaving a balance of $6,635.86 in the hands of the treasurer.

The face value of the collectible notes given for such lands in hands of treasurer and agents for collections is $4,058.35. Few additional discoveries are anticipated, and when the said notes are collected this amount will be virtually closed.

The estimated resources of the University for the next year are as follows:

Interest on the endowment fund	$32,270 68
Rent of residences	2,200 00
Term and laboratory fees	5,500 00
Other sources	500 00
Total	$40,470 68

Or in round numbers, $40,000.

It will be seen from this statement that, unless this sum is supplemented by liberal appropriations by the general assembly, the institution cannot maintain its present high standard, or provide for its proper growth and development, but must reduce its teaching force, curtail its courses of instruction, narrow its aims, and abridge the opportunities it now offers to the youth of the state. We regard such a contingency as a calamity to the educational interests of the whole country.

When the state accepted the grant of Congress, which is the foundation of the university, there was an implied, if not an express agreement on its part that it would in a large and liberal way foster and support such institution, and make proper provision for its growth and expansion. It is a state institution, and should be the pride of the people of the state. We regret to say that it has not secured that hearty and cordial encouragement that has been given to other institutions similarly founded. This fact is strongly set forth in the report of President Scott, herewith presented, to which attention is invited, and whose earnest plea for a permanent additional provision for the support of the university is seconded by the trustees, and earnestly recommended to the thoughtful consideration of your Excellency and the general assembly.

A number of important changes in and additions to the faculty of the university have taken place since the date of the last report.

In December, T. C. Mendenhall, professor of physics, severed his connection with the university to accept the appointment of professor of electrical science in the office of the Chief Signal Officer, U. S. A. And at the close of the university year R. W. McFarland, professor of mathematics and astronomy, retired from this charge to accept the presidency of Miami University. These two eminent scholars and teachers had ably and acceptably presided over their respective departments since the organization of the university, and had largely aided in advancing it to its present proud position. They had impressed themselves strongly upon the institution, and were so closely identified with every stage of its progress that their loss was felt to be a serious one and one not easily repaired.

Prof. Mendenhall's retirement at the close of the Fall term left the physical department without a head during the Winter and Spring terms. The recitations and laboratory work of the departments were, however, conducted in an acceptable manner during those terms by J. E. Randall, Prof. Mendenhall's assistant, and Mr. E. H. Mark, secretary of the Ohio meteorological bureau; Prof. Mendenhall, giving by letters from Washington, valuable counsel in laying out and directing the work.

At a meeting of the trustees, held in May, a committee was appointed to correspond with the leading universities of the country with a view to securing men of high character and attainments who were available and eligible to the vacancies in the faculty. The same committee was also directed to secure and recommend to the trustees for election a professor of history and English language and literature, and also a competent person to take charge of the classes in civil engineering, which was then and there made a separate department.

The classes in history and English language and literature, since the death of Prof. Short, had been ably and acceptably conducted by Miss C. U. Weld, but it was thought best to strengthen this important department by electing a full professor thereto.

At the June meeting of the trustees said committee made its report, recommending Benjamin F. Thomas, Ph. D., late professor of physics in the University of Missouri, for election as professor of physics; George C. Comstock, Ph. B. LL. B., late of Washburn Observatory, at Madison, Wis., professor of mathematics and astronomy; George W. Knight, A. M. Ph. D., late of Michigan University, professor of history and English language and literature, and they were duly elected to said chairs.

The recommendations of these new members of the faculty were of the highest order, and they bring with them to their new field of labor reputations for high scholarship, thorough training, and pronounced success as teachers in their respective departments. They entered upon their new duties at the beginning of the present term with marked ability and zeal, which give promise of eminent usefulness and success.

At the same meeting, Mr. C. Newton Brown, for the last two years an assistant to Prof. McFarland, was elected assistant professor and placed in charge of the department of civil engineering.

Mr. A. H. Welsh was also elected assistant in the department of history and English language and literature.

The detail of Lieutenant F. H. Eldridge, U. S. N., expired at the close of the university year. During the last year of his service at the university he was assigned to duty in the department of mechanical engineering as assistant to Professor Robinson. The expiration of his detail having left a vacancy in this department, the same was filled by the election of Joseph N. Bradford, M. E., a graduate of the university of the class of 1883, who was assigned to duty as such assistant, and as instructor in mechanical and free-hand drawing.

In the last annual report attention was called to the suggestion of Professor Norton, favoring the establishment of a school of pharmacy. After a careful consideration of the subject by the trustees and faculty, and of the fact that almost all the branches necessary to be taught in such a school, were already taught at the university, it was decided to establish such a school. The only thing needed to make such a course of study thorough and complete was the aid of a practical pharmacist to give a course of lectures on the subject. Such a person was found in Mr. George B. Kauffman, of this city, and his services were promptly secured.

A small appropriation of $200 was made to procure the necessary drugs, etc., for manipulation and study, and the school was opened at the beginning of the present term with nine students in attendance.

Attention was also directed, in said last annual report, to the recommendation of Prof. Tuttle, looking to the establishment of a veterinary museum "in order that trained veterinary physicians and surgeons might be sent into every county in the state" to combat the diseases of live stock, which entail such large and increasing losses to the agricultural interests of the state. The general assembly, recognizing the importance of this subject, at its last session, made an appropriation of $2,000 for such purpose, and the board of trustees, at a meeting held in last September, encouraged by such prompt action on the part of the representatives of the people, formally established a school of veterinary science at the university.

The trustees were fortunate in securing the services of Dr. H. J. Detmers, formerly of the Illinois University at Champaign, in that state, and lately employed by the commissioner of agriculture at Washington in the investigation of contagious diseases of domestic animals, who has been formerly elected professor of veterinary science. He entered upon his duties at the beginning of the present term. The school was opened at that time with a well arranged course of instruction, including a daily clinic, and with 17 students in attendance. Both the schools of pharmacy and of veterinary science were established such a short time before the opening of the present term that little time was afforded for properly advertising them.

With proper advertisement of the opportunities thereby offered, the trustees believe that they will be largely patronized by the people of the state.

Since the last annual report, the general assembly has made the following appropriations for the purposes named, to wit:

Ordinary repairs	$2,000 00
Expenses of trustees	500 00
Fuel and care of buildings	2,000 00
Veterinary museum	2,000 00
Improvement of campus	1,000 00
Equipment of horticultural department	400 00
Green house	600 00
Additions to mechanical laboratory	2,500 00
Equipment laboratory agricultural chemist	2,500 00
Library	2,000 00
Laboratories	4,000 00
Salaries	6,000 00

The appropriations for ordinary repairs has been used in making necessary changes and repairs in the steam heating, in dividing some of the rooms in order to accommodate the increased number of classes, in replacing plastering when it had fallen off, in painting and kalsomining and repairing roofs and gutters when needed. The amount appropriated was wholly inadequate for the purpose, and the expense of a great deal of such necessary work will have to be paid for out of the current fund.

There are now more than twenty separate buildings, including the residences of the professors, on the university grounds. They all need more or less constant attention to preserve them from dilapidation. The heating and gas apparatus also need constant repairs. To properly care for them and give them due attention at the proper times requires a much larger outlay than the general assembly has heretofore provided.

Next year the principal buildings should be repainted without and within, and the walls and ceilings brightened with paint or kalsomined. The sewerage of the main and other buildings will need thorough overhauling and the pumps, tanks, cisterns, etc., will need attention. For these reasons the trustees are compelled to ask for larger appropriations for this purpose; an estimate for which will be found elsewhere in this report.

The appropriation for fuel and care of buildings has been applied to the payments of bills for fuel and the salary of the janitor, and to this extent relieves the current funds of the university.

The same may be said of the appropriation for the green house, which is applied to the payment of the salary of the florist in charge. The trustees urgently request a continuance of these appropriations.

The appropriation for veterinary museum, etc., has been apportioned as follows: $1,500 was placed at the disposal of Dr. Townshend and Prof. Tuttle for the erection of a separate building for dissecting the larger animals, the fitting up of the basement under the east wing of the main building as a common museum, and such equipments as could be secured for the balance of said sum; and $500 was placed at the disposition of Dr. Townshend for the purchase of supplies for the department of veterinary science.

The house for dissecting purposes has been constructed at a cost of $417.25, and a model horse has been ordered which will cost about $900. Other supplies have been ordered, which, with the fitting up of the room set apart for that purpose, will exhaust said appropriation. Attention is invited to the reports of the President and Drs. Townshend and Detmers, wherein the needs of additional appropriations in this direction are fully set forth. We commend the same to your careful consideration.

The small appropriation for equipment of the horticultural department has been expended in the placing in order cases for the display of specimens and in selecting and preparing specimens for the herbarium and botanical museum.

Through the partiality of the managers of the Ohio exhibit at the New Orleans exposition, a large number of the cases used there were turned over to the university and appropriated by the horticultural department. With small expense these have been placed in proper order in the room provided with a botanical museum and are a valuable acquisition to that department.

The appropriation for additions to the equipment of the mechanical laboratory, is being expended under the direction of Professor Robinson in the purchase of such machinery and appliances as will illustrate new and improved applications of mechanical movements. Among the things purchased and ordered, and the purchase of which is contemplated, are two grinding machines, an emery tool grinder, a measuring machine, an oil testing machine, standard caliper and screw gauges, tools, bevels, squares, a die sinking machine, watchmaker's lathe, dynamometer, and models of mechanical movements.

The amount appropriated is not sufficient to procure all these, but the additions it will secure will add greatly to the efficiency of the department, which has already attained high reputation among the technical schools of the country.

In this connection the trustees are pleased to state that nearly all the skilled labor which has been performed at the university during the past year has been done by students who have received their training in the mechanical department. The fitting up of the library and laboratory of the agricultural chemist, and the making of the desks, cases, tables and shelving therefor, were done in a satisfactory manner by such students during the summer vacation. The work of changing and repairing the steam fitting in the chemical and mechanical laboratories was also done by them, as was also much of the work classed as ordinary repairs. Their work was well and neatly done, and they were thus enabled to pay a considerable part of their expenses while attending the university.

Other students find employment on the farm, in the horticultural department, and in the work connected with the agricultural experiment station, and it has been and is the policy of the trustees, as far as practicable, to afford such opportunities to those who are self-dependent or desirous of paying their own way.

The appropriation for the improvement of the campus has been used in rebuilding a bridge which was washed away by a spring freshet, in caring for the lawn, in grading, graveling, and in laying a brick sidewalk from High street to the main building. The grounds have been greatly improved by this small annual appropriation. It is the desire of Prof. Lazenby, who is now superintendent of the campus, to adopt a comprehensive plan of improvement, that will add greatly to its beauty and attractiveness, and at the same time afford his classes in landscape gardening and arboriculture additional valuable opportunities for practical instruction. There is much to be done, however, before pure ornamentation can be indulged. There are no good walks between the several university buildings, or between the university buildings and the dormitories. These should be provided at an early day, and an estimate for such purpose will be furnished in another part of this report.

The appropriation for the library has been used in the purchase of books, periodicals and pamphlets, and in rebinding shelf-worn volumes. The number of volumes on hand at the date of this report is about 6,000. Great care has been exercised in their selection, with special reference to their adaptation to the wants of faculty and students. We call attention to the report of the librarian, wherein the condition of the library is fully set forth, and recommend a continuance of the annual appropriation therefor.

The appropriation for the equipment of the laboratory for the agricultural chemist has been applied to the fitting up of the apartments in the chemical laboratory building originally intended for such purposes, to making necessary hoods, cases, tables, desks and shelving, to the necessary plumbing and gas fitting, and to the purchase of necessary equipment and supplies. The organization and equipment of this important department meets a growing demand of the agricultural interests of the state for increased facilities for scientific training in agriculture. That such steps were timely and are duly appreciated is shown by the fact that 19 of the 24 desks in said laboratory are occupied by as many students at the present term.

The appropriation for laboratories has been apportioned among the several departments as follows:

Department of Geology	$100
Department of Chemistry	800
Department of Mech. Engineering	75
Department of Mining and Metallurgy	160
Department of Physiology and Zoology	1000
Department of Civil Engineering	200
Department of Physics	885
Department of Agriculture	100
Department of Horticulture and Botany	300
Department of Pharmacy	200
Department of Agricultural Chemistry	150
Department of Mathematics and Astronomy	30

The appropriation for salaries has been applied in part payment of salaries for the fiscal year.

The appropriations for "salaries" and "laboratories" have given the friends of the university great encouragement. They have hailed this action on the part of the legislature as the beginning of a large and liberal policy towards the university. Those who have been constant in devotion to its interests and aims have taken heart and hope therefrom. It has kindled new zeal in faculty and students, has inspired confidence in its continued growth and expansion, and its happy influence has been felt in all its various departments.

To the trustees such action has been very gratifying, as it has enabled them to take the progressive steps hereinbefore mentioned, and which had been deferred because of inadequate means. They are confident that good and lasting results will flow therefrom, and that the wisdom of such action, and the adoption of such a policy by the legislature will be justified and approved by the people of the state. A continuance of such appropriations is earnestly recommended.

During the past year the trustees have considered the propriety of providing for a law department in connection with the university.

Such a project has the cordial approval and support of a number of eminent jurists and lawyers, who have, at different times, urged its importance and advantages.

At the June meeting of the trustees a committee was appointed to arrange for a course of lectures on the common and international law for the benefit of the advanced classes, but up to this date it has not been able to complete such arrangements, but hopes to do so in the near future.

The foregoing is another evidence of the broader scope the university is expected to occupy before it meets the full expectation of the people of the state.

The recent burning of a portion of the buildings of the Cincinnati University has forcibly reminded the trustees of the dangers to the State University from that source.

A year ago the policy of insuring the university buildings was abandoned and such action reported to your Excellency and the general assembly. The policy of the state becoming its own insurer prevails in other state institutions. This and the fact that the large annual premiums required large drafts on the endowment fund of the university, led the trustees to adopt the same policy in the management of the university. The buildings are now virtually without insurance,—the policies all having expired except $12,000 on the dormitories, $11,000 on the professors' residences, and $2,000 on the barns. None of the buildings are fire-proof. In the main building the valuable apparatus of the physical and other departments, the large and valuable collection in the geological museum, and the library are constantly exposed to danger from this cause.

The geological collection could not be duplicated.

It is of the highest importance that a separate fire-proof building be erected at an early day, to which the library and geological museum can be removed. The suggestions of President Scott and Professor Orton for the erection of such a building are approved by the trustees with the hope that your Excellency will recommend the subject to the favorable consideration of the general assembly.

The university farm during the last year has been under the direction of Professor Henry A. Weber, whose able and careful management is shown in the excellent condition of crops, fences, buildings and live stock. A detailed report of the operations and experiments will be found in his report as farm manager, which is presented in the report of the farm committee filed herewith.

The state agricultural experiment station still has its headquarters at the university, and conducts its experiments on the university farm under the arrangement mentioned in former reports. Though a separate and distinct organization, under the control of a separate board of directors, it is closely allied in interests and aims with the agricultural and horticultural departments of the university, with which it continues in the most friendly and harmonious relations. The legislature at its last session made an appropriation of $1,000 for a storage and seed-room for said station, and the trustees of the university have given formal permission to its directors to erect said building at a designated point on the farm northwest of the main university building, with the understanding that it shall revert to the university if said station shall at any time change its location. Said station, under the arrangement before mentioned, pays a portion of the salary of the agricultural chemist.

The Ohio meteorological bureau is still located and has its offices at the university, the professor of physics being its director. Though like the agricultural experiment station, a separate organization, with a separate board of directors, with separate appropriations, etc., it is closely connected with the physical department, which has the use of its instruments and the benefit of its observations.

At the June meeting Professor Mendenhall represented to the trustees that General Hazen, chief signal officer U. S. A., was desirous of establishing throughout the country a few stations for the observation and investigation of atmospheric electricity, and would establish such a station at the university and detail an officer or non-commissioned officer of the signal service to make such observations if proper provision was made therefor. As such provision only contemplated the furnishing an office for the observer, and the use by him of certain instruments of the physical department when not in u e in class or laboratory work, the trustees accepted the offer of General Hazen and have set apart a room at the university as an office for such observer and station. The trustees hope that this action will bring the students of meteorology into closer relations to those who are conducting investigations in broader fields, will increase the efficiency of our weather service and promote its usefulness to the people of the state.

The State Archæological and Historical Society being in need of rooms in which to store and display its collections, the trustees in June extended an invitation to its officers and directors to make the university its head-quarters. The invitation was accepted, and sp ce in the university has been assigned for temporary display of its specimens until a more commodious and permanent arrangement can be made.

The annual course of lectures for the benefit of the farming community, delivered at the university during the winter, has had the cordial support and approval of the trustees. The attendance during the last couse was not as large as formerly, owing to the severe cold weather prevailing at the time. They were, however, highly appreciated by those in attendance.

It has, however, been deemed advisable to suspend them for the present in order that greater attention may be given to the farmers' institutes.

The attendance on the part of members of the faculty at these institutes held throughout the state has brought these into closer relations with the people of all classes, and they have thus been enabled to diffuse a wider knowledge of the university, and to better present its objects and aims, and the facilities it affords for practical instruction.

During the past year Dr. Townshend was specially detailed to look after such institutes, and to take to his assistance such members of the faculty as could be spared from their regular work, and an appropriation of $100 was made to pay their traveling expenses. A similar arrangement has been made for the ensuing year.

The trustees will ask the general assembly for the following estimated appropriations for the ensuing year:

Expenses of trustees	$500 00
Ordinary repairs	3,500 00
Fuel and care of buildings	3,000 00
Care of green-house	600 00
Improvement of campus	1,500 00
Library	5,000 00

Salaries	10,000 00
Physiological laboratory	5,000 00
Veterinary museum	3,000 00
Astronomical observatory	6,000 00
Building for geological museum	40,000 00
Botanical garden and arboretum	5,000 00

The necessities for these appropriations are fully set forth in the preceding pages of this report, and in the reports of the president, and other members of the faculty, which are herewith presented and made a part hereof.

The trustees renew their recommendation that one-twentieth of a mill on the general tax duplicate be set apart for the support of the university. The arguments therefor have been strongly presented in former reports, and the report of president Scott, to which attention is invited.

The university is doing good work. It has made commendable progress. But its full beneficence will only be felt when the state "cherishes and supplements the bounty of the general government" by an additional permanent provision, such as herein recommended, and by large and generous appropriations for its support.

We hope such a policy will have the approval of your excellency, and be adopted by the general assembly.

Very respectfully,

ALEXIS COPE, *Secretary.*

ANNUAL REPORT OF THE PRESIDENT, 1884–5.

To the Board of Trustees:

I have the honor to submit the following as my report for the year ending November 15th:

Among the most important events of the year were the various changes in the faculty. Professor Mendenhall's resignation of the chair of physics, which occurred at the close of the first term, was felt by both faculty and students to be a serious loss. His ability as a physicist, his success both as a teacher and as a public lecturer, his firmness as an administrator and withal his geniality as an associate, were elements of strength which we could not spare without regret.

The retirement of Professor McFarland from the chair of mathematics and civil engineering, at the close of the year, deprived us of the services of an active and able man, whose broad kindliness, whose devotion to the university, and whose sympathy with the personal interests of the students had made him a general favorite. I wish, also, to record my sense of the merits of Miss Weld who, at the late commencement, left the chair of history and English. Although she came to the position under circumstances of peculiar embarrassment, she steadily gained upon the respect and confidence of those best qualified to judge, and at the time of her retirement was regarded by them as a capable, accomplished and successful teacher. The time of Frank H. Eldridge, assistant engineer, U. S. N., who had served the university faithfully for three years, expired in June last.

In filling the vacancies thus created in the faculty, the board seems to have been especially fortunate. The work now being done in these departments is honorable alike to the incumbents and to the university.

But you have not stopped with supplying vacancies. A gratifying feature of the history of the year has been the enlargement of our work. The creation of a distinct department of civil engineering, and the election of a teacher of drawing and of an assistant in history and English, have added materially to the strength and efficiency of the instruction in those subjects. The instruction in elocution, given during the last term by Mrs. Katharine Westendorf, was an important and welcome addition to our work. It is desirable that the arrangement by which it was secured should be renewed for the present year.

The school of pharmacy begins the work of its first year with nine students, and the way now seems open to offer much more than was at first contemplated. Before the opening of the next year I think we may adopt a full course of study to be completed with a degree. When this decisive step has been taken, and made known to the public, a good number of young men may be expected to apply for admission. The school of veterinary science was organized so near the date of opening that there was no opportunity to advertise it. But a course of study has been adöpted and seventeen students are enrolled in its classes. This course, and the facilities offered by the university constitute, it is believed, superior advantages for veterinary study. The course is four years in length, one year general and preparatory, and three years professional; and each year is a full college year of nine months. Very few colleges for the study of human medicine require as much, some of them not half so much.

In connection with this school a free clinic is open every day, to which patients are brought in considerable numbers.

It is worthy of note that the short agricultural course, which is just becoming known throughout the state, has a first year class of sixteen. The recent equipment of the laboratory of agricultural chemistry affords to these students an excellent opportunity for practical training in that study.

Several departments have made a distinct growth within the year in their appliances for instruction. For a statement of the additions that have been made I would refer you to the report of the heads of these departments.

The number of students in attendance within the college year was, 304; men, 263; women, 41. For the present term, Fall, 1885, the number that has entered is, 313; men, 272; women, 41. A full statement will be found in the catalogue which accompanies this report.

The year has developed a strong and hopeful spirit. What has been done begets confidence in what may yet be done. The university is seen to be acquiring breadth, to be enlarging its scope. The growth that has been made is understood to be a part of that progressive realization of the true idea of a university which has been steadily going on from the first; and it gives ground for the faith that it is to continue steadily going on for many years to come.

It is to be observed that nearly all the advance steps of the year are in the direction of industrial education. In this, the university is fulfilling one of its essential functions, and is attesting in the most emphatic way its fidelity to the great economic interests which it represents. But the limit of extension in this field is not yet reached. Other courses should still be added.

It is gratifying to report that while the university has thus been reaching out to a wider limit, it has also been reaching up to a higher one. Nine persons are pursuing studies here who have already taken baccalaureate degrees. Of these four are our own graduates—two from each of the last two classes; one is a graduate of Denison University, one of Otterbien University, one of Virginia Agricultural and Mechanical College, and two of Antioch College. Two of the nine have entered for the degree of civil engineering, two for the degree of veterinary surgeon, and one for the degree of doctor of philosophy; one is working exclusively in electricity, one in Greek and history, and two are taking advanced mathematics and its applications, with special laboratory work in physics.

These are significant facts. They indicate that our own alumni, who have had the best opportunity to judge of the work of the university, and the alumni of other institutions, recognize the advantages offered here.

They indicate also that there is arising among us a demand for education beyond the baccalaureate degree. It has not been long since few, if any, who had taken this degree thought of carrying forward their studies in a systematic way under the guidance of a faculty; and, if perchance any one did, he met with little encouragement in the sentiment around him. It is an omen of better things that some are seeking the paths of higher learning, and that there are places where their seeking can be encouraged and rewarded.

Here, too, the university is fulfilling one of its functions,—to my mind its highest function. The well-being and the progress of society depend upon its few best men. I mean those men who grasp and apply principles, who devise and carry out measures of reform, who mould public sentiment and guide it to achievements of honorable and virtuous enterprise, and who become the patterns of the best of those who are younger.

Our method of government aims, in theory, to provide for the selection, from the mass of the people, of the few who are best fitted to serve the state. By conventions and elections we choose a few men to do our legislation, a few others to administer the laws, and a few others to expound and apply them. By nomination at the hands of one person, and confirmation at the hands of others, we cull men for the management of our public institutions. What can be more important to society than that these best men should be the best possible, and that the number of them should be as great as possible?

But what is true of political positions is true of every position. The best men to preach should be in the pulpit; the best men to teach should be in the schools; the best men to manage each kind of business should be put in charge of it. The public is most efficiently served, and its interests are most fully promoted when the best men have control.

All classes, therefore, have an interest in the training of talent, and in the fostering of genius, if genius should exist among us. The education of one man like Webster or Agassiz, or Morse would be cheaply done, although it should cost as much as the total endowment of a university. The education of a thousand or ten thousand men of strong brain, of broad intelligence, of thorough training, and great executive capacity, would be worth millions of money to the state. These men would constitute a true aristocracy. We do not need an aristocracy of rank or an aristocracy of wealth. But we do need—society always needs—an aristocracy of intellect. Such an aristocracy is a bulwark of defense and a vanguard of progress. A great intellect is cheap at any price, for intellect is the rarest and most precious product of the world.

The experience of ages has shown that the surest way to provide for this prime need of society is to found schools and institute a systematic discipline.[1] But the school and its discipline must be adapted to the wants of society, and must keep abreast of the progress of knowledge.

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[1] "It is not penury, but the want of education, which 'freezes the genial current of the soul,' and consigns to the neglected enclosures of our country churchyards the remains of so many 'village Hampdens' and 'mute, inglorious Miltons.'"—Amos.

"The philosopher, the saint, or the hero—the wise, the good, and the great man—very often lie hid and concealed in a plebeian, which a proper education might have disinterred and brought to light."—Addison.

To develop and maintain such a school is the aim that we should keep constantly before us. With all that has been done, there are yet departments of knowledge in which we offer no instruction, and in those in which we have done the most there is still great room for expansion. And as human knowledge never ceases to advance, so the university should never cease to grow.

Let the people of Ohio once become firmly possessed of the idea of what such an institution should be, and it will not cease to grow. What is a university? Men who differ fundamentally on other subjects are in substantial agreement on this one. Cardinal Newman says, "A university is a place of teaching universal knowledge." Matthew Arnold says, "A university ought to provide facilities, after the general education is finished, for the young man to go on in the line where his special aptitudes lead him, be it that of languages and literature, of mathematics, of the natural sciences, of the application of these sciences, or any other line, and follow the studies of this line systematically under first-rate teaching." Professor Huxley says, "In an ideal university a man should be able to obtain instruction in all forms of knowledge and discipline in the use of all methods by which knowledge is obtained." Ezra Cornell said, "I would found an institution where any person can find instruction in any study."

The plan of our own institution contemplates such an ideal. It offers eight courses of study leading to degrees, three of which are general and five technical. These courses include twenty departments of instruction and the following extensive list of subjects:

Pure Mathematics, Civil Engineering, Mechanical Engineering, Mining, Metallurgy, Agriculture, Veterinary Science, Botany, Horticulture, Anatomy, Physiology, Zoology, Physics, General Chemistry, Inorganic and Organic, Agricultural Chemistry, Pharmacy, Mineralogy, Geology, Military Science and Tactics, Rhetoric, English Literature, Anglo-Saxon, German, French, Latin, Greek, History, Political Economy, Constitutional Law, Psychology, Logic, Ethics, History of Philosophy.

Such is our plan, and so far has it been fulfilled. Compared with what many colleges are able to do or with what any were able to do a third of a century ago, our present attainment may be called great. But compared with what others are now doing or with the immense range of knowledge and the function of the ideal university, our present attainment is yet small.

Our existing facilities are sufficient in several departments for those students who desire to spend a few years in preparation for some pursuit in life, and care for nothing beyond the purely technical parts of a course. To this class of students the doors of the university stand wide open; and they will continue to come, probably they will come in increasing numbers. But there is another class, who seek to become masters in some pursuit or in some department of knowledge. These desire a comprehensive and thorough course, and they will go far in search of it. They are the students that leave Ohio to become students at Cornell and Yale and Harvard and the German universities. They are the men who are destined to fill our places of honor and influence. Hundreds more of such students would be called forth, if the opportunity for a complete training were presented in their own State.

To meet the wants of this class the endowment of the university for those sciences which constitute the basis of sound technical education, should be much more liberal. Some years ago the University of Oxford, England, expended more than six hundred thousand dollars in physical, chemical, and physiological laboratories, and in a museum. Germany is constantly increasing her appropriations for scientific education; and Sir Lyon Playfair, in his recent address as president of the British Association for the Advancement of Science, ascribes to this cause the superiority of the Germans in many branches of commerce.

Even the best of our laboratories could be enlarged with advantage. Some of them are well equipped for certain lines of work, but are inadequate for others. Some of them are well equipped for certain lines of work conducted by a single student, but that more students may pursue the same line of work at the same time, as many more sets of apparatus should be provided. Of our admirable geological museum Dr. Orton—and surely no one else is so well prepared to judge—says: "The collection is indisputably the best exhibition of Ohio geology that has been made, but it is greatly in need of increase and improvement in several directions. Inasmuch as it is used in educational work, it ought to be made more general in character. It ought to represent far more fully than it does, the entire geological column." Of the outfit for work in astronomy, Professor Comstock says: "I especially call your attention to the almost entire absence of facilities for instruction in practical astronomy. The department possesses but one instrument, a sextant, with which any astronomical observation can be made."

On the side of language, literature, history, and philosophy, the great wants are books and teaching force. We should be able to offer in these subjects a greater number of courses and more advanced work. In each of them we can at present give but a single course, and in most instances that course is a short one. Hence the work must be elementary. The student can give no more time to the study of logic or political economy here than he could have done in a small college forty years ago. The text-books have doubtless improved and the teaching is perhaps done by better methods; but the time is too short to carry the student beyond the rudiments of the science. And it is impossible to extend the time, until the faculty is increased or a generous provision is made for assistance.

For all departments, but especially for those just named, one of the most important means of education is an ample and well selected library. Breadth of knowledge and scholarship are unattainable without it. Scholarship in any department requires an acquaintance with all writers of note in that department, with the methods they employed, the principles they discovered, and the opinions they maintained. To be a scholar one must know the history of his subject. He must feel the inspiration that comes from intercourse with the ablest minds that have already wrought in the same field. All this can be gained only by a close and protracted study of the books that other scholars and thinkers have written. Books are, and must always be, the student's chief source of knowledge, of discipline, and of intellectual stimulation.

In a university many subjects are represented, and, if the ideal university is to be realized, all subjects will be represented. Even now investigation must be carried forward on many lines. For this, a large library is needed. No mere collection of books, however large, and no small collection, however well chosen, is adequate to these broad purposes. A university library should contain all the valuable books, ancient and modern, in all the leading departments of thought. It should supply whatever any professor may need for investigation and whatever any student may need for reference.

The quality of our library is excellent. There is no waste material in it. Its one defect is its insufficiency. What we have is a nucleus, a sound and healthy nucleus; but it is only a nucleus, and we should foster it to a strong and rapid growth. The generous appropriations of the last two years have done much for it; but tenfold more must be done before we shall have a library commensurate with the wants of a university. We should continue to develop as rapidly as possible this principal source of power. No other one thing will do so much to make the university a center of knowledge and culture.

It appears to me that the time is at hand, if it has not already come, when we may raise the standard of admission so as to dispense with the first year, at least, of the preparatory department. I hope that the day is not far off when we may dispense with this department altogether. There is no good reason, in my judgment, why the funds of the university and the energy of its faculty should be expended in doing work that is already provided for in all of the best high schools of the state. We now accept for freshman standing the diplomas of high schools in all towns of Ohio containing, by the last census, five thousand or more inhabitants. Of such towns there were in 1880 no less than thirty-seven. These towns are scattered over the state, and are therefore much more convenient of access than the university. Why should a two-years' course of study be maintained here merely to duplicate work that is done at public expense in thirty-seven other schools? Let students acquire their preparatory trainings in those schools, and then seek the university for advanced education. The state has, in Professor Huxley's famous phrase "a ladder reaching from the gutter to the university, along which every child has the chance of climbing as far as he is fit to go." But the university has let down a section of ladder which completely overlaps the highest section reared from below. Why not withdraw it and push it upward?

I hope, however, that a different method of selecting high schools will soon be adopted. Merit, determined by visitation, should be substituted for the mere accident of population.

The terms of admission might be somewhat lower for those who enter for short special courses than for those who come for a degree. I am convinced, however, that the difference ought not to be great. It works injury both to the student himself and to the university to admit him to advanced classes without due preparation He is unable to do the work well or to derive from it the benefit it is designed to give; and at the end of a year or two he goes out, crude and illiterate, to be employed and trusted by the public, under the mistaken notion that he has been educated at the university. But a young man who has taken the required preliminary studies, may, with great advantage, spend one or two years in the technical studies of the latter part of the course. The short agricultural course forms an obvious exception to these remarks, and should be retained substantially as it is.

In view of the great number of farmers' institutes held throughout the state, it does not seem expedient to continue the usual course of farmers' lectures at the university. The faculty very cheerfully engage in the work of this course, but the same labor bestowed at the institutes would probably accomplish better results.

The agricultural experiment station continues to do a large amount of useful work. Its reports are eagerly sought for, and are the means of diffusing much practical information. The advantage to the university of having the station maintained in connection with it, is of no small magnitude; and I feel sure that there is a disposition on your part to appreciate this advantage at its full value, and to promote as far as possible the friendly relations that have hitherto existed between the two institutions.

The part taken by the university in the international exhibition at New Orleans is reported as very creditable. We certainly have no reason to regret the time and labor spent upon it, for we have derived considerable profit in return. A large number of specimens has been received for the geological museum, some of which are of special value. The agricultural experiment station has received an extensive collection of material, much of it from foreign countries, which has been placed in the horticultural building of the university. The educational exhibit, which was returned to the state in care of Hon. L. D. Brown, the state commissioner of common schools, has been committed by him to the university.

In accordance with your invitation, the Ohio Archæological and Historical Society has brought its collections to the institution, and has been assigned temporary accommodations in the art hall on the fourth floor. Although still limited, this collection contains many articles of interest, and the society will perform an important service in rescuing from oblivion relics of those mysterious races who inhabited our land in remote ages. It is fitting and fortunate that the university should be selected as the place for preserving these treasures, and I would suggest that every reasonable encouragement be extended to the society.

All these facts are proofs of the loyalty and activity of the friends of the university. They also show the increasing power of gravitation in the institution. On these accounts, as well as for their intrinsic value, the recent accessions ought to be especially gratifying.

The future of the university depends primarily on the people of the state. If they appreciate it, and sustain it, it will continue in its career of advancement. If they, through their representatives in the legislature, meet its growing wants, and furnish it with the means of increasing its power, it will rapidly rise to such a degree of influence and distinction as to be a chief honor to the state. I believe that we have but to make the subject fully understood in order to obtain from the general assembly the liberal support which the cause deserves.

The states of the West are moving strongly in the support of their universities. By several of them great liberality is shown in appropriations, and as a consequence the institutions are making rapid progress. Below is a comparative table of the appropriations to some of the state universities. The state valuation is that of 1880, given in millions:

	Valuation.	Appropriations to Universities.				
		1881.	1882.	1883.	1884.	1885.
Nebraska	$90	$56,000	………	$75,000	………	$160,500
Kansas	160	………	$34,400	38,825	$40,000	………
Minnesota	258	58,000	58,000	58,000	58,000	65,000
Iowa[1]	398	50,000	20,000	92,000	28,000	28,000
Missouri	532	………	………	………	………	………
Indiana[2]	727	23,000	23,000	67,000	67,000	110,000
Illinois	786	41,500	………	54,500	………	53,500
Wisconsin[3]	438	$\frac{1}{20}$-mill, State tax.	$\frac{1}{20}$-mill, State tax.	$\frac{1}{20}$-mill, State tax.	$\frac{1}{8}$-mill, State tax.	$\frac{1}{8}$-mill, State tax.
Michigan	517	74,500, & $\frac{1}{20}$-mill, State tax.	86,000 & $\frac{1}{20}$-mill, State tax.	37,200 & $\frac{1}{20}$-mill, State tax.	27,200 & $\frac{1}{20}$-mill, State tax.	56,000 & $\frac{1}{20}$-mill, State tax.
Ohio	1,534	1,350	21,850	29,600	10,450	25,500

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[1] Till 1882, $20,000 was also given as permanent annual endowment; since 1882, $28,000 is so given.

[2] Since 1882, $44,000 of the appropriation is added annually to the permanent endowment fund.

[3] In addition to the tax above given, $204,500 have been appropriated within the five years for buildings.

These figures are eloquent. But what citizen of Ohio can read them without a blush?

From this table it appears that Ohio has almost twice as much wealth as the very wealthiest of these other nine states; more than the two wealthiest of them combined; and seventeen times as much as the poorest of them.

Wisconsin now gives to her university one-eighth of a mill tax on the total valuation of the state. If Ohio will do as much for the Ohio state university, she will in five years have one of the foremost universities on the continent.

Last year Nebraska, which has but one-seventeenth as much wealth as Ohio, made a biennial appropriation of $160,000 to her university, or $80,000 a year. This is at the rate of almost *nine-tenths of a mill* on the total valuation of the state. At the same ratio the appropriations of Ohio to her university for two years would amount to more than two and three-quarters millions of dollars. If she should continue such appropriations for ten years, she would have one of the foremost universities in the world.

I wish to reiterate, with added emphasis, if possible, the statements and arguments of my two previous reports. Time but strengthens my conviction that the state should supplement the endowment of the university by giving it a fraction of a mill on the tax duplicate. In no other way is adequate provisions likely ever to be made for its permanent prosperity. Let the state place the university side by side with the common schools, sharing, as they do, in the regular income of the state and constituting the head and crown of her great educational system.

The immediate wants of the various departments are set forth in the reports of the members of the faculty, which are submitted herewith. I commend to your attention the request for a liberal addition to the equipment of the physiological department. The new school of veterinary science renders it even more important than before that the facilities of the laboratory and lecture in this department room should be extended; the number of students to be accommodated makes such an extension indispensable to a proper economy of time.

The request from the department of veterinary science is so reasonable that it will doubtless receive your favorable consideration. It needs both room and appliances. I would suggest also that an appropriation should be asked of the legislature to aid in carrying out the plan for a veterinary museum.

In my report two years ago I said, "We are quite behind, not only the foremost state universities, but all of the best colleges, in the fact that we have no astronomical observatory. An observatory is needed by the departments of mathematics, civil engineering and physics. Such a want ought not to remain unsupplied." What is now desired is not a large observatory for research, but a small one for the practical work of instruction. We are fortunate in having a professor in the department of mathematics and astronomy who has had considerable experience in such work, and has assisted in planning and equipping at other universities two such observatories as the one now requested for the classes here.

The leading educational men of Ohio are unanimous, I believe, in the opinion that the state should afford means for the systemetic preparation of teachers. The great want of our common schools is good teachers, teachers who have been taught and trained in the principles and methods of their profession; and it devolves upon the state, the founder and supporter of the schools, to provide such teachers for them. One decisive step toward this end would be to establish a chair of pedagogics in the university. Such a chair, filled by an able professor, would diffuse a new life among the schools and would soon improve the quality of the work done in them. Indeed, the school economy of the state will remain incomplete till this step has been taken.

I have spoken before of our need of additional room. Every year makes the need more imperative. The establishment by the last general assembly of a forestry bureau at the university, the placing here of the collections of the archæological and historical society and the Ohio educational exhibit, and the designation of the university by the United States signal service as one of the stations for observations in atmospheric electricity, are bringing useful and welcome adjuncts to the institution; but they will all require room. Besides, our own work is extending. The veterinary department is yet unprovided for. The lecturer in pharmacy will need a place for his work. The laboratories and museums are growing.

The question of a new building is thus forced upon our attention. The professor of physics reminds us that his department is almost bursting its confines, but yet, in order to maintain its standing and keep pace with the development of physical science, it needs extensive additions. I hope that the time is not distant when these wants can be fully met.

Perhaps the most urgent demand at present is that of the geological museum for a safe and commodious building. This museum is a collection in which the state has a special interest. It is, for the most part, the fruit of the geological survey, conducted under the authority and at the expense of the state. It is the only collection that represents with any approach to completeness her great mineral resources. To care for it, is one of the plainest dictates of prudence.

Its present accommodations are already too narrow. The room is full; but Dr. Orton assures me that, if a suitable building were provided, other excellent collections, now in the hands of individuals, would come to the university.

The case is so strong that it seems unnecessary to plead it. An appropriation sufficient to erect a suitable and handsome building to receive this valuable collection, would render a great service to the university.

In each of the last two years the legislature has given us more than we at first asked. This fact indicates a growing appreciation of the present work of the university, and a growing faith in its future mission. But it rests upon us to lay clearly before our law-makers the full magnitude of this work and mission. Having done this, I believe that we may confidently expect a liberality on their part corresponding to the wealth and the dignity of our noble state.

WILLIAM H. SCOTT.

DEPARTMENT REPORTS.

DEPARTMENT OF GEOLOGY.

President W. H. Scott:

DEAR SIR: I herewith present my report of the department of geology for the last academic year.

The number of students enrolled in the several classes of the department during the year was 94. These students were distributed among the classes named below as follows:

General geology, junior class, 2 terms	28
Economic geology, junior class, 1 term	9
Physical geography, 1st preparatory class, section A, 1 term	36
" " " " " section B, 1 term	21

Deducting students counted twice in this enumeration the total number pursuing studies in my department was 85.

I am glad to record that the subject of physical geography is now taken up in the second preparatory year instead of in the first, at the very entrance of the student's work, as heretofore. The change ensures a greater degree of maturity, and a somewhat larger stock of knowledge on the part of the student, and cannot fail to be advantageous to the department. The work in geology proper remains as at the date of my last report.

By an arrangement made with the trustees, with your consent and approval, I was allowed to withdraw from college work during the last term of the year, and I was thus enabled to resume work on the geological survey of the state, for which the last legislature made provision. The subjects belonging to my department were so arranged that all of them were provided for in the first two terms of the year.

I am grateful to the trustees for the liberty thus afforded me, and to you for your kind co-operation in the furtherance of my plans. I am very desirous of carrying forward still further my work on the geology of the state, and I trust that it will be possible to continue for years to come this or some similar arrangement.

During the past year a part of the geological collection was temporarily withdrawn from the museum, to be used in making the Ohio exhibit at New Orleans. The collection and arrangement of the entire geological display of the state was placed in my hands, and while I assumed the responsibility therefor, the actual work was chiefly done by my son, Edward Orton, Jr., M. E.

One object in allowing our material to be thus temporarily diverted from its proper use was to ultimately secure valuable addition to the museum thereby. I am happy to say that this object has been accomplished, and that several hundred specimens, many of them of unusual interest and value, were returned to us with our original material. on the breaking up of the exposition. These additions are mainly in the line of economic geology. Among them a suite of building stones, ores and other minerals from Mexico, deserve special mention.

ANNUAL REPORT.

During the last year I have completed the numbering of the specimens of the museum, and have also made considerable progress in the permanent catalogue. The present number of specimens exceeds 6,700, and as a rule, only one member is given to a single species of fossils, though the species may be represented by numerous individuals.

The museum greatly needs more care than I have been able to give to it. No such collection can be kept in an attractive and improving state unless it receives constant oversight and labor. The economic geology of Ohio is already represented fairly well in the museum, in a broad and general way, but even this division needs a vast amount of elaboration in the fuller determination of microscopic structure and chemical composition. The paleontology of the state as represented in the museum greatly needs similar kinds of labor.

The collection is indisputably the best exhibition of Ohio geology that has been made, but it is greatly in need of increase and improvement in several directions. Inasmuch as it is used in educational work, it ought to be made more general in its character. It ought to represent far more fully than it does, at present, the entire geological column.

In all plans for its enlargement, however, I find myself distinctly limited by the space available for its display in the room which is now assigned to it. The wall and floor space of the present museum room are already fully occupied, and the nature of the room (which is by far the most available of the main college building) does not admit of the construction of galleries, and there is no adjacent space that can be annexed.

The truth is that the museum needs a building for itself, and I trust that the time has now come when we may set about the work of providing suitable quarters for it, with good promise of success. We must distinctly recognize the fact that suitable provision will require considerable outlay. It is easy to lay down a number of points that should be observed in the construction of a museum .building. (1) It should be built of Ohio stone. (2) It should be fire-rpoof. (3) It should furnish one example on college grounds of a building properly constructed, heated and ventilated. (4) It should be large enough to provide for the natural growth and expansion of such a collection as it would contain.

In regard to the first point, it is only necessary to say that our own state furnishes the largest amount, and, in many respects, the finest quality of building stone of any state in the union. Our museum should be made a proper representative of this great interest. Several of the leading varieties should find place in its construction. I have but little doubt that the public spirit and business sagacity of our quarrymen would make it possible for us to obtain the best building stone of the state on unusually favorable terms. Competition might well arise among the great centers of production as to finding places in such a building, inasmuch as it would form a most conspicuous and permanent advertisement of the materials used in it.

It needs no argument to show that a building designed for such a use should be fire-proof, but in addition to the obvious reasons for this requirement, I may add that if a proper place were furnished by the university, adapted both to the proper display and permanent preservation of the materials entrusted to it, valuable collections of fossils and minerals would be sure to come to us. There is one cabinet of fossils in the state, to-day, on which many thousands of dollars, and many years of enthusiastic labor have been spent, and which would be an ornament to any museum in the world. That I believe we could confidently count upon, if we could offer a safe and suitable repository for it.

I will not dwell longer on these points, but in case the trustees decide to move in this matter, I shall take great pleasure in securing all available information as to the best modern practice in museum construction, and also in furnishing to the architect the needful requirements of the building that we wish to obtain.

Very respectfully,

EDWARD ORTON,
Professor of Geology.

Ohio State University, November 2, 1885.

CHEMISTRY.

COLUMBUS, OHIO, *November* 2, 1885.

WILLIAM H. SCOTT, *President:*

DEAR SIR: I have the honor to present this my thirteenth annual report of the department of general and analytical chemistry.

The total number of students enrolled during the year ending in June, 1885, was—

In elementary chemistry	76
In qualitative analysis	7
In quantitative analysis	10
Total	93

With an average attendance for each of the three terms of the year of about eighty-two students.

An attempt was made to supplement the individual instruction necessary in the laboratories by gathering the students in classes for systematic instruction, reviews and drills. Although it was found necessary to do most of this work "out of college hours," so much of success was attained that the plan will be continued.

The present needs of the department are the increase of materials for instruction, such as suits of specimens for illustration of chemical processes in manufactures and the arts, special apparatus required for experiments in the lectures, and a large increase of our books of reference. One item greatly needed is a suite of minerals used as the sources of chemical products; another, a collection of dye stuffs and bye products; another, materials to illustrate the lectures on applied chemistry on foods, on poisons, and the like. The formation of such collection has been kept steadily in mind from the opening of the university. A fair beginning has been made, mostly by gifts, but I think I may ask for a small amount in money to purchase a few needed sets that are not likely to be presented to us. Such purchases ought to be made every year and the department kept abreast with the applications of chemical science in the outside world.

And of course we shall never cease to lack more books of reference. During the past year several chances were had of purchasing complete sets of Liebig's Annalen, of the Jahresbericht, etc. The first-named could have been bought at one time for about $500. Its selling price varies with the number of copies offered, but is steadily increasing, and it is desirable that the university should possess it as soon as funds can be had for that purpose. I want also a number of books to illustrate the history and growth of chemistry and its allied sciences.

A "shorter course" in pharmacy has been provided and is likely to be acceptable to pharmacists. It is, however, only regarded as provisional and as a sort of entering wedge for a full and complete course. So, also, I hope that at no distant day courses will be established leading to degrees of chemical engineer, physical engineer, and the like; not that such degrees are worth more than a certificate of work done, but that students in this and similar institutions have come to regard them as the recognition proper for systematic study in special fields.

Dr. David O'Brine has continued to act as the efficient assistant in the laboratory. During the year he gave instruction in "medical chemistry" to a small class (voluntary).

Although the number of students was less than in the year previous, the work of instruction was not less onerous, owing largely to the difficulty of arranging the laboratory hours as per college programme. The results attained were (as I venture to think) satisfactory to those concerned.

Very respectfully,

SIDNEY A. NORTON.

AGRICULTURE AND VETERINARY MEDICINE.

President W. H. Scott:

DEAR SIR: The following report of work done during the past year in the department of agriculture and veterinary medicine, is respectfully submitted.

AGRICULTURE.

At the beginning of the last college year the agricultural classes under my instruction numbered fourteen; at the close of the year the number had increased to nineteen. None of these students were registered for the short course in agriculture, then but recently arranged. The opening of the present year affords gratifying assurance that the proposed two years' course in agriculture meets a real want, for while the regular agricultural students number nine, there are in addition sixteen who have registered for the two years' course. This large increase inspires the hope that when the facilities afforded by the two years' course become generally known a much larger attendance of young farmers may be expected.

FARMERS' LECTURE COURSE.

The farmers' lecture course at the university, last year, was not as well attended as formerly. County farmers' institutes, under the auspices of the Ohio State Board of Agriculture, are annually held in many counties, and in nearly all of these the professors at the Ohio State University are invited to participate. Such institutes have the advantage of bringing agricultural questions to the attention of a larger number of farmers, and with less expense and inconvenience to themselves. Hence, it is a question whether the time given to the farmers' lecture course may not be productive of greater good if hereafter expended at county farmers' institutes.

VETERINARY MEDICINE.

The interest manifested in veterinary studies has been for some time steadily increasing. The veterinary class at the beginning of the past college year numbered nine students, and at the close of the year fifteen. At the commencement of the present college year an important advance was made by the establishment of a veterinary department. Heretofore veterinary instruction has been given at the university as part of the agricultural course. The necessity for well educated veterinarians has become more and more apparent with the increase in number and value of farm stock in the state. In the judgment of the trustees of the university the time has come for the establishment of a well equipped veterinary department, supplied with the necessary teaching force and all the facilities for giving a thorough veterinary education and followed by the usual degrees. The assistance has been secured of Professor J. H. Detmers, V. S., who was formerly in the service of the medical division of the agricultural department at Washington, D. C., and late of Champaign, Illinois. Professor Detmers has already entered upon his duties, and the number of students at present occupied with veterinary studies is seventeen.

With great respect,

N. S. TOWNSHEND,

Professor of Agriculture.

DEPARTMENT OF VETERINARY SURGERY.

Wm. H. Scott, President:

SIR: Since the beginning of the fall term, when I was appointed to the chair of veterinary surgery in the recently established veterinary department of the Ohio state university, I have instructed three classes, viz.: one of five students in "infectious, contagious, and epizootic diseases of domestic animals," one of four students in "veterinary surgery," and one of five students in "veterinary clinic". Permit me to say that, although the department is new, and was established only at the actual beginning of the term, the results, so far, are very gratifying, and the students enrolled in my classes seem to take great interest in the branches taught. In the clinic, an institution, entirely new to the citizens of Columbus and vicinity, but one animal was presented for treatment and examination in September, or before the existence of a free clinic was announced in the local papers. From the seventh of October,—the announcement had been made a day or two before,—until date, the thirty-first of the same month, thirty horses, affected with various but mostly chronic diseases, have been presented for treatment, and have been examined, prescribed for, and operated on by the class. As to other domestic animals, only one was brought to the clinic, a dead sheep for post-mortem examination. It is true, the number of patients, presented for treatment, is not a very large one, and not near as large as I would desire, or as it will be in the future, when the citizens of Columbus and vicinity will have learned to appreciate the opportunities offered them in a free clinic; but if it is taken into consideration that the whole department is new, and has not been advertised beyond brief notices in the local papers, you will agree with me, when I say the number is highly satisfactory, and indicates that the institution will soon become popular, and will be well patronized.

Fully appreciating the great value of practical instruction, I have also started a kind of ambulatory clinic by taking the members of my class with me to such patients, as I have been called upon to visit, and you may rest assured that I shall endeavor to make practical instruction (in the clinic) in every respect a prominent feature of the new veterinary department. But in order to do this, much better facilities than those now existing will be needed; at present, however, I shall not ask for the establishment of a fully equipped veterinary hospital, but only for such facilities as are absolutely necessary, and, at the same time, will cause but little expense. The things I have to ask for, are: first, a place—a closet, for instance, that can be locked,—in which such instruments, tools, medicines, etc., can be kept within convenient reach, as are needed for surgical operations, and post-mortem examinations. Such a closet, provided with a few shelves and drawers, can be conveniently partitioned off in the frame building, the east end of which is used for clinical purposes. Secondly, several instruments and tools are needed, among them I will mention: hopples and ropes used in throwing a horse, two or three syringes, a balling-iron, an ecraseur, a case of dissecting instruments, a set of trepanning instruments, some horse-shoeing tools—such as are used in taking off a horse-shoe, and in nailing it on again,—one or two water-buckets, some sponges, bandages, etc. For common and every-day operations my own instruments are sufficient, and may be used, for the present at least. Thirdly, it is necessary to have a room fitted up as a dispensary. This, room, if used for no other purpose, only needs to be small, but should be well lighted; it should have some drawers intended for the more bulky drugs, and sufficient shelf-room for about four dozen of stand-bottles, and its furniture should consist of a good-sized and strong table, which is provided with drawers for vials, salve-boxes, labels, corks, wrapping paper, spatulas, mortars, weights, etc. For drugs, not kept on hand in large quantities, stand-bottles with well fitting glass-stoppers constitute the best receptacles. Of such bottles, ranging in size from a four-ounce bottle to a quart-bottle, about four dozen will be required, half of them salt-mouthed for dry drugs, such as salts and vegetable powders, and the other half—about two dozen—narrow-mouthed for fluids. Further, the dispensary should be supplied with at least two good druggists' scales—one large enough to weigh two or three pounds, and the other one delicate enough to accurately weigh a quarter of a grain,—the necessary weights, a large, a medium-sized, and a small porcelain mortar, some spatulas, etc. No appropriation will be required for medicines, because the latter, it is expected, will be paid for by the owners of the animals, for which they are prescribed. A blank-book, however, in which the history and treatment of every case can be recorded for future reference, will be found to be exceedingly useful. It should be kept in the dispensary, and be open to the inspection of the veterinary students.

Fourthly, I deem it very desirable to have a suitable room assigned to me as a lecture-room, to be exclusively used by my classes. If the room so assigned is conveniently located, and not in one of the upper stories of the university building, there would be no objection to providing it with the necessary fixtures, and to using it as a dispensary, because during clinic hours nobody besides the veterinary students needs to be admitted—that is, it would not be necessary to admit the owners, etc., of the diseased animals. If such a room can be assigned to me, it might afterwards also be used as a veterinary museum, and the small room, above spoken of, would not be needed. Having no price-lists of dealers in surgical instruments, etc., I cannot make an accurate estimate of the amount of money needed to procure the things above asked for, but feel confident that an appropriation of, say, two hundred dollars, will cover the whole.

The above is very respectfully submitted by

Your obedient servant,

H. J. Detmers,

Professor of Veter. Surgery.

Columbus, Ohio, October 31, 1885.

DEPARTMENT OF MATHEMATICS AND CIVIL ENGINEERING.

W. H. Scott, President :

Sir: I have the honor to present to you the following statement of the work done in my department during the academic year closing in June, 1885.

FIRST SESSION.

Mahan's Civil Engineering, 5; Spherical Trigonometry, 40; Geometry, 29; Analytical Geometry, 27; Algebra, 26.

SECOND SESSION.

Algebra, 24; Geometry, 27; Analytical Trigonometry, 29; Descriptive Geometry, 16.

THIRD SESSION.

Algebra, 27; Plain Trigonometry, 18; Astronomy, 28; Calculus, 24; Engineer's Drawing, 4; Analytical Trigonometry, 2; Geodesy, 8.

Total number in classes, 324.

CLASSES UNDER CHARGE OF ASSISTANT C. N. BROWN.

First Term—Heuck's Field Work, 8; Surveying, 16; Geometry, 13.

Second Term—Junior Engineering, 7; Geometry, 9; Drawing, 11; Descriptive Geometry, 13.

Third Term—Engineering, 7; Trigonometry, 18; Drawing, 9.

Total number in classes, 111.

CLASSES IN CHARGE OF LIEUTENANT A. P. BLOCKSOM.

First Term—Algebra, 23; Second Term—Algebra, 14; Total, 37.

CLASSES IN CHARGE OF ASSISTANT G. W. M'COARD.

First Term—Algebra, 13; Second Term—Algebra, 15; Third Term—8; Total, 36.

Total number in the department, 508.

Respectfully submitted.

November 2, 1885. R. W. McFarland.

DEPARTMENT OF MATHEMATICS AND ASTRONOMY.

President W. H. Scott:

Dear Sir: The department of mathematics and astronomy having been under the charge of my predecessor during the college year 1884–'85, I submit herewith in lieu of an annual report a statement of the present condition and needs of the department.

The instructional force in this department at the present time consists of the professor in charge; of one assistant professor, who is also professor of military science; and of one assistant whose time is divided between mathematics and Latin. This force, while perhaps adequate to carry on the work of the department as now organized, will be quite insufficient if any considerable extension of our mathematical curriculum is made. At present students in the school of arts and philosophy receive *no* instruction in mathematics. I regard it as highly desirable that such instruction should be given these students, at least through their freshman year; and also that courses in mathematics beyond the limits of our present curriculum should be opened to students desiring such advanced study. This additional work cannot profitably be undertaken by the department without an increase of its working force. I therefore request that provision be made whereby the entire time of the present assistant in mathematics and Latin may be given to this department. Without this provision or its equivalent, the extension of work here contemplated will be impracticable; and to neglect or to long delay an extension of our mathematical curriculum is to choose for ourselves a position among institutions of learning inferior to that which properly belongs to the state university of one of the richest and most populous of American commonwealths.

I especially call your attention to the almost entire absence of facilities for instruction in practical astronomy. *The department possesses but one instrument, a sextant, with which any astronomical observation can be made.* This is as though a carpenter's chest of tools contained only a hatchet. The importance to the engineer or the physicist of at least an elementary knowledge of the principles and practice of observational astronomy is so great, and the facilities for acquiring this knowledge can be provided at an expense relatively so small, that I most earnestly ask for an appropriation for the equipment of a small observatory for student use. An equatorially mounted telescope and a combined transit and zenith instrument of suitable size and of the best construction, together with the requisite subsidiary instruments, such as a sidereal clock, chronometer, chronograph, etc., can be purchased and mounted here at an expense not exceeding $5,000, and I ask through you for an appropriation of that amount for this purpose. Provision for housing the instruments can most conveniently be made in connection with the building asked for by the department of physics, and I join with the professor of physics in asking an appropriation for the erection of a building for the joint use of the department of physics and mathematics and astronomy.

Very respectfully,

Geo. C. Comstock,

Professor of Mathematics and Astronomy.

Ohio State University, November 1, 1885.

DEPARTMENT OF CIVIL ENGINEERING.

W. H. Scott, President:

DEAR SIR: I respectfully submit the following report for the fall term, 1885.

The work this term has followed closely the old course of study—the only change being in the senior year. This class has had higher surveying, and now has sanitary engineering instead of railroad surveying. Railroad surveying will be taken up during the spring term.

The department is fairly well equipped with field instruments, but is sadly in need of models, photographs and drawings of engineering works. A few things have been secured, and others have been ordered, and will be in place this term.

Very respectfully,

C. N. BROWN,
Assistant Professor.

November 9, 1885.

DEPARTMENT OF ZOOLOGY AND COMPARATIVE ANATOMY.

Wm. H. Scott, President:

MY DEAR SIR: I have the honor to submit my eleventh annual report.

During the collegiate year of 1884-5 the enrollment in the various classes in my department was as follows: Freshman—physiology, thirty-six; sephomore—zoology, twenty-five; laboratory students, twenty-two. Of the latter eight were members of a special class in anatomy, temporarily established for certain freshmen, ten were pursuing the regular work of the first elective year in the physiological laboratory, and four were advanced students, pursuing special lines of work. The total enrollment, less the number of those enrolled in more than one class, was seventy-eight. Each of these classes was continued throughout the year.

I regret to say that no important additions to the equipment of the laboratory under my charge were made during the year. This is the more unfortunate, not only because there are some important pieces of apparatus which are very much needed, but particularly because the number of students entering the laboratory is already so large that much time is lost, and much work done at a disadvantage for want of a sufficient number of duplicates of some of the smaller pieces of apparatus which we now have as single pieces only. The establishment of the new course in veterinary medicine, to which ample and thorough instruction in physiology is fundamental, renders it all the more important that the equipment of this department be made adequate to the demands upon it as speedily as possible.

Two valuable additions have been made to the collection of the department during the year; one, a large spider monkey, presented by Dr. Chas. Foster, of Washington C. H.; the other, a fine wild swan, sent from Illinois by Hon. L. B. Wing, of Newark, a member of our board of trustees. After dissection, the skeletons of these animals were sent to Ward, of Rochester, to be mounted, and, when returned, will be much valued additions to our museum.

I desire to add that the duties devolving upon me have become so much greater than I can properly perform, that I must ask to be provided with an assistant who can devote his whole time to the work of the department.

All of which is respectfully submitted.

ALBERT H. TUTTLE,
Professor Zoology and Comparative Anatomy.

Ohio State University, October 15, 1885.

DEPARTMENT OF MECHANICAL ENGINEERING.

To W. H. Scott, President:

SIR: I respectfully present the following report for the department of mechanical engineering, for the year ending June, 1885:

First Term—Students in mechanical laboratory, 19. Resistance of materials, 7. Thermodynamics, 4. Analytical mechanics, 7.

Second Term—Students in prime movers, 5. Technical drawing, 4. Mechanism, 8. Mechanical laboratory, 12.

Third Term—Students in technical drawing, 4. Mechanism, 7. Millwork and machinery, 4. Invention and designing, 5. Mechanical laboratory, 10.

During the year I was aided by the valuable services of Frank H. Eldridge, assistant engineer U. S. N., by reason of which some more classes than usual were introduced, and a number of students accommodated.

The legislative appropriation, by which my department is benefited, will greatly improve our facilities for instruction on the practical side. Orders have now been given, November 6, 1885, covering about three-fourths of the amount appropriated, and some of the articles have already arrived. It is believed advisable that a good part of the amount be laid out in procuring means for illustrating the higher, or finer, practical mechanical operations, such as are required in constructing the finest machinery. This enables us to meet the demand for appliances for use in the advanced work provided for by the introduction of senior mechanical laboratory. Among these are included grinding machines, measuring machines, standards of various forms, gauges, laying out appliances, and a lubricant testing machine.

When these appliances are all in, we will have the means for executing the finest machinery made. When the student has acquired familiarity with these, he will be ready for the finest work, as well as the merely ordinary. The lubricant tester is for determining the lubricating value of oils and greases, and the student by use of it will become practically acquainted with the suitability of different lubricants for different purposes.

I think it desirable that the oil tester, and perhaps other machines be set in the front room. To admit of this, shafting has been ordered to extend from the machine room through the partition to the east wall.

Though the present appropriation very materially extends our means for practical instruction, yet there is room for further and much desired advance in the same direction toward greater completeness of outfit, and to a condition for favorable comparison with like equipments in other states. It is hoped that further appropriations may soon be had for this end.

Some of the remaining needs, besides tools for illustrating a still greater variety of mechanical operations, are means for establishing more system in the laboratory by introducing a so-called "tool-room," where tools for general purposes can be kept and cared for; various individual kits of tools in appropriate portable cases for the lathe, planer, etc., which can be given in charge of students, one to each, to avoid tampering by others; a greater variety of illustrative models of mechanical movements, some additional testing machines, power measurers, etc.

Very respectfully,

S. W. ROBINSON.

Columbus, Ohio, November 6, 1885.

DEPARTMENT OF PHYSICS.

President W. H. Scott:

SIR: The following is the report for this department for the college year ending June, 1884.

The number of students enrolled in the various classes were as follows:

Second preparatory physics	76
Freshman physics (laboratory)	14
Sophomore physics	65
Advanced physics (laboratory)	12
Total	167

Deducting 14, as counted twice in the above table, the number of individual names was 153.

When Professor Mendenhall's resignation took effect, his classes were taken and continued through the year by his assistant, Mr. J. E. Randall. The second preparatory class was assigned to Mr. E. H. Mark, Secretary of the Ohio Meteorological Bureau. Through the joint labors of Mr. Randall and Mr. Mark, the work of the year was carried on without interruption.

It is necessary to emphasize the oft-repeated statement of the need of more room for the department. The present rooms are not enough; they are poorly lighted and ventilated, and are not well arranged for the work to be done in them, and the department is seriously crippled in consequence. We need a new building at once, for no more room is available in the present building.

We need also means to provide for the repair of apparatus now on hand, and for the purchase of new pieces. I shall continue Professor Mendenhall's plan of adding instruments for precise measurement as rapidly as possible. It will be necessary, however, that the sum annually allowed for these purposes be considerably larger, to enable the department to maintain the reputation it now enjoys.

The library has received during the year a number of works which materially benefit the department, and still greater additions will be made during the coming year.

Very respectfully yours,

BENJ. F. THOMAS,
Professor of Physics.

DEPARTMENT OF MINING AND METALLURGY.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report as to the work of the department of mining and metallurgy for the past year:

The work of the department is in two divisions—the instruction and the carrying on of the chemical laboratory.

The work of instruction in this department consists of, first, a course of daily lectures on metallurgy, extending through a year. This course of lectures I have been able to render more and more complete every year, owing to the large amount of material which my connection with the state geological survey, and my opportunities as analyst enable me to collect, illustrative of the metallurgy and mining of the state. This year I have obtained the use of a projecting lantern, and am thus enabled to illustrate my work by photographs of furnaces, ore deposits, etc. In addition to the course in metallurgy, there are classes in mining engineering, ore-dressing, assaying and mineralogy. The assay laboratory is now so well equipped that I am able to give a full course in practical assaying of gold, silver, lead, tin and iron-ores.

The chemical work of the department consists of, 1st, all the analytical work of the state geological survey, amounting to two or three hundred analyses a year; 2nd, the analysis of all fertilizers for the state board of agriculture, as required by the fertilizer control law; 3d, such general analysis as is of interest to the public. In order that this large amount of work may be accomplished, it is necessary to employ an assistant chemist. Mr. W. J. Root acts for me in this capacity, devoting his whole time to strictly laboratory work.

The department record for classes for the past year is as follows:

Metallurgy assaying, and other special studies	8
Mineralogy	50
Total	58

This includes no student twice.

Last year there were two graduates in mining engineering. This year there will be probably four or five.

The only expense this department has been to the university is about $60.00, for the material used in the assay laboratory by students. All the expenses of this chemical laboratory, including the salary of the assistant, being paid by the fees charged for this work. The actual expense of running the laboratory for the current year will be about $1,200.00.

Respectfully submitted.

N. W. LORD.

DEPARTMENT OF GREEK.

W. H. Scott, President:

DEAR SIR: I have the honor to present the annual report of the work in my department for the college year ending June, 1885.

My regular class-room work, included instruction given three hours weekly to each of the three upper college classes, and five hours weekly to the freshman class. The course of study, as laid down in the catalogue, was, in the main, adhered to, and satisfactory progress in the Greek language and literature was made by all the classes.

At the request of Professor Derby, I also took charge, through the year, of a section of the first preparatory class in Latin, reciting five hours a week, making a total, for all my classes, of nineteen hours weekly for the entire year.

The following table will show the enrollment in my various classes:

In senior Greek	4
In junior Greek	8
In sophomore Greek	17
In freshman Greek	9
In first Preparatory Latin	25
Total	63

This total represents an increase of sixteen over the previous year.

I am glad to acknowledge considerable accessions to the works of reference in the classical department of the library. I would, however, respectfully urge a small appropriation for further purchases of maps, charts, and other illustrative apparatus, which are such valuable adjuncts in the study of ancient literature and life.

I cannot refrain from expressing the hope that the time will soon come when it will be possible to demand, at least, one year of elementary work in Greek from all candidates for admission to the freshman class in the arts course.

Very respectfully yours,

JOSIAH R. SMITH,
Professor of Greek.

Ohio State University, November 1, 1885.

DEPARTMENT OF LATIN.

W. H. Scott, President:

DEAR SIR: I have the honor to submit my annual report of the department of Latin for the year ending June 24, 1885.

The total enrollment of the several classes was:

Junior Latin	7
Sophomore Latin	21
Freshman Latin	26
Second preparatory Latin	28
First preparatory Latin	35

Professor J. R. Smith kindly took charge of one section of the first preparatory class, thus making it possible for me to instruct all the remaining classes.

In methods of instruction there was no marked change from preceding years, but slight modifications were introduced whenever made desirable by changes in the course of study, or by the need of any particular class.

The standard of work did not fall below that of former years.

The most conspicuous defects in the department have been, and still are, due to the inadequate preparation of those who enter its advanced classes.

With a view to the correction of this deficiency, the faculty have determined to raise the standard by requiring those who hereafter enter the first preparatory class of the course in arts and philosphy to pass examination in one book of Cæsar and the elements of Latin grammar. When this measure takes effect, pupils who enter the freshman class will have spent no more time upon the study of Latin than is required by the great majority of reputable colleges in and outside of Ohio. The requirement, which simply brings our standard up to that of such institutions, will probably lessen, at first, the number of candidates for the courses in arts and philosophy, but it is hoped, and expected, that gradually a greater number of capable and ambitious students will be attracted, rather than repelled by the advance in requirements and the higher standard of scholarship and more extensive course of classical study, which such advance renders possible, and that thus the diminution of numbers will be made good if sufficient time is allowed for a fair trial of the new plan.

A consideration more important than that of large classes is the quality of work performed, and this must largely rest upon the sure basis of thorough early training. When that has been secured advanced work of high excellence can be reasonably expected and required.

There are no insuperable obstacles that should prevent this university from so strengthening and perfecting its classical department as to draw graduate students to that as now to its scientific and professional departments. Such a development must be kept in view and prepared for.

A small sum is needed for the purchase of maps, plans, and other illustrative material. Twenty-five dollars will supply the most urgent wants of the department in this respect.

Very respectfully,

S. C. DERBY,
Professor.

Ohio State University, October 29, 1885.

DEPARTMENT OF BOTANY AND HORTICULTURE.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following report of the department of botany and horticulture for the year ending June 19, 1885:

The subjects taught and the number of students under my instruction during the year were as follows:

Fall term, 1884.	No. of students.
Economic botany	10
Advanced botany (sophomores)	26
Special botany	2
Winter term, 1885.	
Physiological botany	4
Cryptogamic botany (sophomores)	22
Horticulture and arboriculture	6
Spring term, 1885.	
Structural and systematical botany	53
Advanced botany (sophomores)	19
Floriculture and landscape gardening	4
Special botany	2

The system of teaching heretofore pursued in this department has been continued with slight modifications. The instruction is given mainly by lectures, supplemented by frequent reviews, seminaries, laboratory and field exercises. Mr. W. S. Devol, a member of the senior class, who has made a speciality of botany, ably assisted me in the laboratory during the spring term. The students have been prompt in attendance, and have evinced a good degree of enthusiasm in their work, making the past year an equally pleasant and prosperous one.

MEANS OF ILLUSTRATION.

Considerable progress has been made since my last report in the way of collecting and preparing illustrative material.

The means of illustration in this department naturally divide into two distinct groups, viz.: (1) Those suitable for the class-room. (2) Those useful for out-door observation, study and practice. To both divisions, valuable additions have been made. For the class-room, the herbarium has been enlarged, and a valuable collection of woods, fibres, fruits, grains, and other material representing various economic products of the vegetable kingdom, has been secured. Much of this material formed a part of the "Ohio exhibit" at the recent World's Industrial and Cotton Centenial Exposition at New Orleans, and was received in exchange for specimens from the exhibit of the experiment station.

The green-house has been very successfully cared for by Mr. C. A. Roth. Many new plants of great educational value have been added during the past season. It is now fairly well stocked, and adds greatly to the efficiency of the work of the department.

The means of out-door illustration have been greatly extended, and, in most particulars, are comprehensive and valuable. It is a matter of great regret that our climate is too capricious to admit of the cultivation of any of the more tender fruit trees or ornamental plants.

The most important change in the out-door work of the department has been the removal of the vegetable and seed-garden from its recent location to one adjoining the fruit garden. This brings all of the horticultural work into close proximity, and will greatly economize time and save labor in supervision. A detailed report of the present equipment and work done in this branch of the department will be submitted to the farm committtee of the board of trustees.

The following is a brief summary of the means of illustration and instruction in this department:

(1.) A museum, containing specimens of nearly every plant found in the state, and fairly representing the flora of the United States. A large collection of grasses, grains, seeds of weeds, woods, and various economic products of the vegetable kingdom.

(2.) An orchard, containing numerous well selected varieties of the apple, pear, cherry, plum, and quince.

(3.) A small vineyard, containing 75 varieties of the grape.

(4.) A garden of small fruit, containing 100 varieties of strawberries, 30 of raspberries, 10 of blackberries, and all the standard sorts of currants and gooseberries.

(5.) A vegetable garden, with hot-beds, cold-frames, experimental plots, conveniences for irrigation, etc., in which are cultivated all the vegetables commonly grown in market gardens.

(6) Nursery and forest-tree plantations, with practice rows for building, grafting, pruning and training.

(7.) Ornamental grounds, or university campus, planted with a large variety of evergreens and deciduous trees and shrubs.

(8.) A well built and conveniently arranged green-house, furnished with a good collection of native and exotic plants selected with reference to their educational value.

EXPENDITURE OF APPROPRIATIONS.

The special appropriation for the equipment of the department has been mainly expended in the construction of cases for the storing and preservation of seeds, and in furnishing necessary supplies for the green-house. A small unexpended balance will be used in the purchase of a collection of horticultural hand implements for budding, grafting, etc., and a small stock of botanical paper for mounting herbarium specimens.

The appropriation for the botonical laboratory will be expended for miscroscopes and an assortment of chemical reagents, staining fluids, alcohol, poisons, etc.

Some valuable additions have been made to the works of reference in this department by means of the general library appropriation.

NEEDS OF THE DEPARTMENT.

There are still urgent needs in various directions, which must be met before the work of the department reaches a full degree of efficiency.

1. The most imperative of these requirements is a well established and thoroughly equipped botanical garden and arboretum. This would illustrate the principles of botanic classification, and would be of especial service to the students of agriculture, horticulture, and medicine, both human and veterinary.

At the last annual meeting of the state horticultural society, the following resolution was unanimously adopted:

Resolved, That the establishment and maintenance at the Ohio State University of a well equipped garden and arboretum, for the illustration of systematic and economic botany and forestry, would be of great benefit to the people of the state, especially to teachers of our public schools, to farmers, nurserymen, fruit growers, florists, and to medical studends. In such establishment the state horticultural society will take the deepest interest, and it desires respectfully, but earnestly, to commend the subject to the trustees of the state university and to the general assembly.

A portion of the campus lying just south and west of horticultural hall is admirable adapted for this desired end. An appropriation of $5,000, judiciously expended, would establish such a garden and supply an urgent need.

2. The average annual loss to the farmers and gardeners of this country from insects is enormous. The loss of fruit in this state alone from this cause must amount in value to thousands of dollars. These losses constantly and forcibly remind us of the importance of instruction in economic entomology. Some instruction in this line is now given by the professors of zoology, agriculture, and horticulture, respectively. More is needed, especially by the students in the school of agriculture. If means are not available for a professorship of entomology, which might include

zoology, I would respectfully suggest, and the suggestion is heartily seconded by Dr. Townshend and Prof. Tuttle, that a course of lectures by some eminent authority on entomology be provided for the winter term. This is all the more feasible from the fact that several professors of entomology have no college duties during the winter in the institutions with which they are connected.

3. The department is still in need of botanical models and charts. These are regarded as indispensable in like departments of other institutions. A series of some of the most important of the Auzoux models and a full set of charts could be secured for $500.

I again express my appreciation of the signal value of the experiment station as a means of illustration and training for students. A member of the senior class, who expects to complete the agricultural course this year, asserts that the training he has acquired in work for the station has doubled the value of his college course. Its educational value is not confined to the university, but has a growing reputation throughout the entire state. During the past year, nearly $800 have been paid by the station for labor done by students.

As secretary of the school of agriculture, I cannot but rejoice at the increased number of students in this department. It shows that among our young men, some, at least, are beginning to realize the grand possibilities of a farmer's life, and have intelligently resolved that the future of American agriculture shall be an improvement on its past.

Yours respectfully,
November 3, 1885. WILLIAM R. LAZENBY.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

W. H. Scott, President:

SIR: I have the honor to submit the following report of the department of the university in my charge for the past year. The battalion was smaller than for some years, owing to the fact that the sophomores were excused. During the last term the attendance averaged less than ninety, and the work was not as satisfactory as in the preceding terms. At present the attendance is one hundred and fifty, and the battalion is in a better state of discipline and training, owing chiefly to greater enthusiasm created by increase of members. The best evidence of this is the erect and soldierly bearing of the new cadets. Military drill is not a spasmodic and irregular system of gymnastics to which students are sometimes inclined when left to their own resources for physical development, but requires a reasonably sustained and constant *effort*, whereby both mind and body are well trained and exercised. I would again urge the fact that the battalion, and consequently the university, will be greatly benefited by the addition of the sophomores to its ranks. It will acquire more character as an organization, and there will be more enthusiasm, discipline and efficiency generally. The drill takes but one hour each day, and, even entirely aside from a military point of view, its effects are as valuable and lasting as those of any other study. It is my belief that a separate building, to be used as an armory and gymnasium combined, would be a great advantage to the university. Much confusion and disturbance of classes would be avoided, and cadets could be driiled to better purpose during the winter season.

Very respectfully,
Your obd't serv't,
A. P. BLOCKSOM,
1st Lieut. 6th Cav'y, Professor of Military Science.

Columbus, Ohio, November 3, 1885.

DEPARTMENT OF AGRICULTURAL CHEMISTRY.

W. H. Scott, President:

SIR: The undersigned respectfully submits the following report of the department of agricultural chemistry for the year ending June 25, 1885.

Only one class in agricultural chemistry was taught during the year, and the number of students was as follows: Fall term, four; winter term, four; spring term, three. Two hours each week throughout the year were devoted to recitations and lectures, and six hours a week to laboratory practice.

As reported last fall, two of the rooms assigned to this department were temporarily fitted up for work, the most necessary apparatus being kindly furnished by Professor Norton and Professor Lord. It is needless to say, that with the facilities at command it would have been impossible to accommodate a larger class.

An appropriation of twenty-five hundred dollars was made for this department by the last general assembly. As soon as possible after the close of the college year, the work of furnishing the rooms assigned this department in the chemical building was commenced.

The large room intended for the students' laboratory and several of the smaller rooms had to be finished and all of them painted. The northeast room has been supplied with a lecture table and blackboards, and will be used for a lecture room. The room south of the lecture room has been supplied with a desk and gas hood, and will be used as a private laboratory for the instructor. In the large room desks have been prepared for twenty-four students. These desks are supplied with gas, water and sinks. Three gas hoods have been built in this room, and there is a place for one more. Of the two small rooms immediately west of the laboratory, one will be used for a balance room, and the other for keeping reagents and chemicals, as well as for the combustion furnace, blow-pipe table, etc. The room west of the main entrance has been selected for a general store-room.

At the beginning of the summer vacation bids were invited for apparatus on condition that the goods should be shipped by the first of September. Some annoyance has been experienced from the fact that the dealer to whom the order was given, did not comply with this condition. Some of the apparatus essential to the opening of the laboratory has not been received at this writing.

It is gratifying to be able to state that the number of students in this department has increased beyond expectation this year. Two of the older students are taking special work in veterinary materia medica, while in the class of the short agricultural course seventeen students have been enrolled, sixteen of whom are now in daily attendance.

Very respectfully,

H. A. WEBER.

Ohio State University, October 29, 1885.

DEPARTMENT OF HISTORY AND ENGLISH LANGUAGE AND LITERATURE.

William H. Scott, President:

SIR: I have the honor to submit the following report of the department of history and English language and literature for the year 1884-85.

The number of students enrolled in the various classes in the department was:

HISTORY.	1ST TERM.	2D TERM.	3D TERM.
United States constitutional	11	9	9
Senior	1	1	1
Junior	9	6	4
Preparatory, United States	13	17	8
Preparatory, General History	22	12	15
Total	56	45	37

ENGLISH.	1ST TERM.	2D TERM.	3D TERM.
Senior	6	4	4
Junior	14	11	11
Sophomore	30	23	21
First Preparatory	18	11	11
Total	68	49	47

Owing to the pressure of work upon Miss Weld, who was in charge of the department, the instruction in United States constitutional history was given by the president; in preparatory general history by Lieutenant Blocksom; and in preparatory English by Mr. McCoard. Dr. Orton also continued an arrangement previously in operation, and took the charge of the weekly rhetorical exercises, to which all collegiate students above the rank of freshmen are subject.

By the additions this year to the teaching force of the university, it has been made possible to place the entire work of the department in the care of a professor and an assistant, whose whole time is given to instruction in these branches. In addition, the class in political economy, hitherto under the instruction of the president, has been given into the charge of this department.

As the courses of study are at present laid down, only students working for the degree of bachelor of philosophy have any opportunity in their collegiate career here to pursue the study of history, beyond one short course in the constitutional history of the United States. Some knowledge of European history is not only desirable apart from our own history as a nation, but indeed essential to a proper conception of United States history. Few, if any other, of the larger colleges of the country have debarred their students in the arts and science courses from the opportunity of gaining some knowledge of European history, and I would respectfully suggest that provision should be made at an early day whereby a greater proportion of our students may pursue one or more of the historical courses now open to a limited number only.

I cannot urge too strongly the necessity for a largely increased appropriation for the library fund of this department, the work in history and English being still seriously limited by the lack of adequate library facilities. In these subjects, unlike many others, the entire work of the student must be done with books; unless he can have access to these he is as helpless to accomplish his tasks as the workman without tools, or the chemist without his laboratory. Several important additions have indeed been made during past year from the funds available, but the needs are still greater, and must of necessity increase unless a far larger sum be appropriated.

The present equipment of the university in the way of wall-maps and reference atlases is exceedingly meager, and entirely inadequate to our needs. History cannot be properly taught, nor the best results obtained by students, without facilities for studying the geography of history. The library does not now contain a reference atlas of any kind that is worthy of consultation. An appropriation of at least one hundred dollars is imperatively needed to supply these wants.

Very respectfully yours,

GEO. W. KNIGHT.

Ohio State University, November 5, 1885.

DEPARTMENT OF FRENCH AND GERMAN.

Wm. H. Scott, President:

SIR: I have the honor to submit the annual report of the department of French and German for the year 1884–85.

The number of students enrolled was:

Sophomore French	27
Freshman French	49
Second Preparatory German	22
First Preparatory German	38

It is considered that these languages have each a course of two years, but, in fact, it is the German alone which has two full years, the sophomore French having been limited a few years ago to two recitations per week. The result of this limitation is the natural one: the students in this year of French accomplish but two-fifths of the work done before the change was made. The loss of time is felt in two directions: the work done in the literature of the language must be very restricted, and the student has little opportunity for such class-room work as is necessary to acquire facility in the use of the language.

Since no previous knowledge of these languages is at present required to gain admission to the course, the first year has to be taken to give the students a knowledge of the rudiments. While this work is in progress, careful attention is given to the study in composition, for in no way does one become so skillful in the use of and gain so extended a vocabularly in a foreign language as by writing that language. Though engaged in elementary study during the first year, still the student is ready, by the second term of that year, to begin to read; no time is then wasted in the use of "readers," but some one of the standard authors is taken. The work in composition, which has continued with the critical reading in the texts, ceases during the first term of the second year. In the second term of the second year the work in literature is begun.

To this brief statement of the course pursued, I would add that the endeavor is to give the student as great ease as possible in reading the language.

In order to understand why this is made the aim, it will be necessary to offer the following explanations: Language, as any other subject of study, divides into different branches, or sub-divisions,—for example, one finds even at the beginning of such a study, that the work lies in three general lines, viz.: to read, to write, to speak the language. To gain a perfect knowledge of any language, these lines must, of course, be pursued until the student is able to unite them into one.

Experience has taught that where the attention has to be divided among the various studies of a college curriculum, the perfect result mentioned above cannot be obtained in two years. After this experience, the question arises on what branch should the attention be concentrated to obtain the next best result? In other words, if one has not time to acquire such ease in a language as to be able to use it as his own, what knowledge will most profit him? It is well understood what the answer of those would be who take but a narrow view of college work, and who have a superficial notion of language-study in general and of the natural method in particular,—these would say give the attention to the speaking of the language.

But one who has studied both methods would reply, give the attention to the reading of the languge; because the ability to speak a language *well* rests on the ability to read and write it; if it does not have this foundation then such an acquirement is almost worthless, for it is a mere feat of the memory and is quickly lost; it is not knowledge, much less culture.

The value of the study of all modern languages is each day better understood; the value of the French and German is an especial one, since with the English they form a triumvirate of languages used by the three great peoples of modern times. Therefore in all our various relations with the French and German nations, a knowledge of these tongues is important. But to the English student who wishes to make a critical study of his own speech, they are of great value, so closely is the English allied to the one, and so enriched has it been by the other.

The department has been greatly benefited by the recent additions to the library, and we take this opportunity to express our gratitude for our share in the library-appropriations.

Respectfully submitted.

ALICE K. WILLIAMS.

DEPARTMENT OF DRAWING.

W. H. Scott, President:

SIR: This department has, after a lapse of two years, again been established in the university, and I am glad to report that the year opens with bright prospects.

The present term commences with eighty-one students, which clearly indicates the need of the department. Two classes are in progress at present, one in projection drawing, numbering twenty-four students, and another in free-hand drawing, numbering fifty-seven students.

The aim in projection drawing being to teach the student the care and manipulation of drawing instruments, and at the same time to exercise his imagination, in order to form a clear conception of the appearance of objects.

This ability to form a vivid and distinct mental image, as well as to fix it permanently by accurate representations, is a very much needed faculty of the engineer, who is frequently called upon, not to copy what has been done, but to do what has not been done.

The plan adopted in free-hand drawing is about the same as that followed in art educational institutions.

There is needed for mechanical drawing suitable drawing tables to facilitate the work.

For free-hand drawing more copies are needed for flat copy shading, as also are tables and screens.

I beg leave to call attention to the fact that some appliances should be provided by which instruction could be given in the process of "blue printing," which is so universally practiced in drafting departments.

Part of my time is devoted to Prof. Robinson's department.

Very respectfully yours,
J. N. BRADFORD.

Ohio State University, November 9, 1885.

THE LIBRARY.

W. H. Scott, President:

DEAR SIR: I submit herewith my annual report of the library. The list of periodicals purchased for the reading-room is as follows:

The *Magazine of American History, The Scientific American, Nature, Science, Popular Science Monthly, American Machinist, American Journal of Science, Van Nostrand's Engineering Magazine, North American Review, Andover Review, Spectator, Nation, Journal of Chemistry, Fortnightly Review, Contemporary Review, Magazine of Western History,* and *Mind.* Of several of these the library has incomplete files; of four, *Science, The North American Review* (except one volume), *The American Journal of Science,* and *The Magazine of Western History,* it has complete and bound sets. Partial sets of four others, *Van Nostrand's Engineering Magazine, the Nation, Magazine American History, Fortnightly Review, Contemporary Review* and *Journal of Chemistry,* have been bound and thus made of permanent value.

The following journals have been sent to the library by the publishers or other friends: *The Ohio Farmer, Northwestern Rural, City and Country, American Engineer, American Manufacturer, Columbus Record, Watchman, Christian Register, American Inventor,* and *Patent Office Gazette.*

The number of periodicals will be largely increased in 1886; care will be taken to select those of established reputation, and such as will be worth binding for preservation and continued use. In no other way can the cost of these journals and reviews contribute as much to the value of the library, especially its scientific portion. In adopting this plan we shall follow the example of the best libraries of the country.

The number of volumes in the library at the end of the college year, June 24, 1885, was 5,359.

At that date the legislative appropriation was not exhausted. The number of books which had been purchased from it was somewhat larger than had been anticipated, and it is believed that the balance is sufficient to pay for *The Edinburgh*

Review, in 168 volumes, and *The Quarterly Review*, in 155 volumes, which have been added since the current college year began.

The present quarters of the reading-room and library are pleasant and well adapted for their purpose, except that the reading-room is not large enough to secure to those who use it the quiet privacy which is found necessary by most students. During the winter months it forms a convenient and much-used place of study.

The card catalogue has been essentially improved by adding about 1,100 references to articles whose tenor, or existence, is not indicated by the titles of the books of which they form a part. These references have been taken thus far chiefly from works of a historical and literary character, but should be continued so as to include the more important scientifice treatises.

Much still remains to be done to render the resources of the library more generally known, and more readily accessible to those who use it. The attention of the librarian, and assistant librarian, is constantly directed to this end.

The chief need of the library, however, is a great increase in the number of books. Much has been added to the size and value of the collection within the past two years, but it still remains one of the most meager of college libraries. I think I need urge no other consideration, no other argument is so convincing.

The assistant librarian, Miss E. C. Lehner, has done her work faithfully and efficiently.

Yours respectfully,

SAMUEL C. DERBY,
Librarian.

Ohio State University, November, 1885.

REPORT OF SUPERINTENDENT OF GROUNDS.

To the Trustees of the Ohio State University:

GENTLEMEN: As only a few months have elapsed since my appointment as superintendent of grounds, this report will partake of the nature of a prospectus. I shall present certain general considerations and from these deduce a few practical suggestions, which seem to me worthy of immediate attention.

1. The university is fortunate in the possession of an unusually fine domain, embracing a large tract of land with a more or less undulating and broken surface. The dominant feature of the landscape must be the picturesque, and to improve this the natural undulations of surface, the noble growth of native forest trees, the banks of the petty stream which are more or less skirted with native shrubs and vigorous growing herbaceous plants must be preserved. From time to time, there will be erected upon these grounds various buildings to meet the growing needs of our university. All plans in regard to the treatment of the grounds should be made with reference to this.

Here, as elsewhere, the too common mistake has been committed of erecting buildings as they have been required, without any general plan beforehand, the location of each structure being governed by immediate needs or the whim of the moment, without the slightest regard to the general effect, or harmony as regards position and style, of the whole. The result is, our buildings are huddled together in a sort of chaotic fashion, or located where they never cease to offend the eye, and cause perpetual annoyance, if not constant future inconvenience. This can only be corrected by calling in the best landscape gardening and architectural talent to devise a general plan for the location of future buildings. It is not to be expected that detailed plans for all prospective structures, or definite assignments of ground for each can now be made, but a comprehensive general scheme having in view the best possible arrangement of future buildings should be devised. In order to secure this end, I would respectfully suggest that a building committee, representing trustees and faculty, be appointed.

2. In regard to the grounds in general, the policy clearly should be to make them not only attractive but convenient and serviceable. For students of botany, landscape gardening, and floriculture, they should have a signal educational value and be abidingly useful. They should be an example of good taste and correct management for the general public. They should furnish convenient and agreeable means of recreation and physical culture for the whole student body. To properly carry out this policy, demands much time in personal supervision, and generous appropriations to pay for labor. These should be cheerfully given, for, excepting class-room instruction, there is not a more important feature in the whole university management.

RECENT IMPROVEMENTS.

With the limited appropriation at command, it is possible to do little more than to keep the grounds in fairly good order The past season, however, has seen some permanent improvements that cannot fail to make life more comfortable for those that are actively engaged in university work. Of these, may be mentioned the stone arch over the stream which crosses the road leading to the dormitories. This has replaced an equally unsightly and unsafe wooden bridge. Another marked improvement is the construction of a good brick walk from High street past the professors' residences to a point meeting the walk already made from the main building. The walk leading to the larger dormitory has been regraveled a good portion of the way, and the remaining walks will be repaired as fast and far as circumstances will permit.

DRIVES AND ROADS.

These are in measurably good condition, and will be repaired at different points during the present fall and coming winter. The cross drive which led to the janitor's house is no longer a necessity, but a disfigurement, and has been taken up.

PLANTING OF TREES AND SHRUBBERY.

But little has been done in this direction the past season. The severe frosts of the last two winters, the temperature at the university falling as low as 32°, have proved very inhospitable to all but our very hardiest trees and shrubs. We are now testing and acclimating a good collection of ornamental trees in the nursery, and will be able to use some of our stock for planting on the grounds next spring. Although it takes more time, it is, in my judgment, much more economical and more satisfactory in every way to raise the greater part of the trees and shrubs needed to adorn and beautify the university estate.

The trees planted along High street and Woodward avenue need some attention. Some have been killed; others should be replaced by better specimens. As these trees were planted by the farm department, I suppose their care properly belongs to the same.

Next spring there should be an evergreen hedge planted on the boundary between the ornamental grounds and gardens. This hedge should be kept low, and need not obstruct the view. It is needed, however, to mark the limits and separate the two departments.

The wind-break which surrounds the present fruit garden should be extended, so as to include the ground recently added.

THE LAWN.

This was very much injured by the severe weather of last winter, and requires careful treatment. It should be liberally top dressed with well decomposed stable manure this fall and winter, thoroughly harrowed in early spring, then carefully seeded and well rolled. If this is done, and the grass regularly cut with a good one-horse lawn mower, it would add much to the appearance of the campus. A good lawn is the foundation of all landscape gardening. It is the soul of the picturesque and beautiful in nature. It will be impossible to make the university grounds really attractive, unless means are provided to keep the lawn in perfect order.

SEATS AND ARBORS.

Some rustic seats placed at suitable points, a few simple arbors covered with hardy climbers, neatly designed bird-houses fastened to some of the larger trees are among the inexpensive improvements that would add to the beauty as well as usefulness of the grounds.

FLOWER BEDS.

During the past season the flower-beds were greatly increased in number and extent. They were well cared for and attracted much attention. Some of the designs were originated by the students in floriculture and landscape gardening. The aim in out-door flower gardening is to give such examples of neatly designed and well arranged inexpensive beds as may be applied even on small grounds.

ATHLETIC GROUNDS.

As long as the university has no gymnasium, special pains should be taken to provide the best possible means for field sports. Provisions for the physical development of students should be found side by side with those for intellectual development. A full measure of health can be preserved in no other way. The university domain is ample enough to meet all reasonable demands in this direction without detracting from its beauty or landscape effect. I would suggest that all grounds needed for field sports be put in the best possible condition for the use of students just before the opening of each college year, and that the care of them thereafter be left to the various organizations that use them. Perhaps the university, at the present time, cannot do more in the way of physical culture. It certainly should do no less.

LIGHTING THE GROUNDS.

Inasmuch as the regular meetings of the literary societies, occasional lectures, and entertainments of various character are held in the university buildings during evenings, some provision for lighting the main entrance and approach should be made. It would also seem within the duty of the university to provide this for the benefit of the professors who reside upon the campus. If it is not practicable to have any complete system of lighting, either by gas or electricity, some less expensive form might be devised.

SEWERAGE.

The system, or rather lack of system, of sewerage for the principal buildings is found inadequate, and must be improved. This question is not a difficult one to solve, and a complete, wisely-planned, and well executed sewerage system need not involve any very great expense.

I would recommend that the professor of civil engineering be requested to present a plan with estimates, at an early day. As the case stands at present, the sewerage is discharged into a shallow pit only a short distance from the main building, polluting the atmosphere, and by its unregulated overflow rendering a large tract of land useless.

NECESSARY APPROPRIATION.

In order to carry out the work suggested, there should be moderate but sufficient appropriations. A good beginning can be made with $2,500, and I trust that this amount may be placed at my disposal.

Yours respectfully,
WILLIAM R. LAZENBY,
Superintendent of Grounds.

FARM DEPARTMENT.

REPORT OF THE FARM COMMITTEE.

Hon. T. J. Godfrey, President:

The farm committee herewith present, in a condensed form, the reports of the professors of agriculture and horticulture, and make their papers a part of this report. We have examined the financial part of them, and find the vouchers to correspond with their books.

Prof. H. A. Weber, who one year ago consented to add to his other duties that of farm manager, has made a signal success, in his endeavors to improve upon former methods. In no particular is this progress better exemplified than in the improved system of farm book-keeping he has introduced, and in the clear and accurate manner in which he has presented all the details of his financial transactions.

We invite attention to the practical lessons taught in both the reports herewith submitted.

L. B. Wing,
S. H. Ellis,
J. B. Jamison,
Farm Committee.

L. B. Wing, Esq., Chairman of Farm Committee:

Dear Sir: I have the honor to transmit herewith a detailed report of the management of the university farm for the year ending November 1, 1885.

Yours respectfully,
N. S. Townshend,
Professor of Agriculture.

Ohio State University, Columbus, O., November 1, 1885.

REPORT OF FARM MANAGER.

Dr. N. S. Townshend, Professor of Agriculture, Ohio State University:

Sir: Herewith the undersigned respectfully submits the report of the fa department for the year ending November 1, 1885.

Statement A gives a general view of the operations of the farm during the year.

Statement B shows the detailed receipts of the farm, and statement C the bursements of the farm during the year, and the cash on hand November 1, 18 .

All accounts against the farm have been paid to date, with the exception of a note of $850.

A few communications in regard to crops grown during the year, and the operations of the dairy have been appended, which, it is hoped, will be of some interest to farmers.

Very respectfully,
H. A. Weber,
Farm Manager.

Ohio State University, November 1, 1885.

Note.—Statements B and C have been omitted in the published report because too voluminous. They show the total receipts of the farm to have been $5,794.36; disbursements, $5,586.43, leaving balance November 15, 1885, $201.93.

Alexis Cope,
Secretary.

STATEMENT A.

Items.	On hand Nev. 15, 1884		Bought		Produced.		Consumed.		Sold.		On hand Nov. 1, 1885.	
	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.
Horses	8	$1,110 00	1	$100 00	2	$200 00			2	$220 00	9	$1,190 00
Cattle	45	3,915 00	3	121 00	22	860 05	1	$40 00	22	555 63	47	4,904 82
Hogs	49	221 25			64		2	25 00	66	499 05	45	200 00
Implements		3,117 20		45 00								3,162 20
Corn	1,400 bu.	700 00	301 bu.	164 52	3,700 bu.	1,100 00	1,900 bu.	924 00	615 bu.	186 90	2,586 bu.	775 80
Wheat	31 bu.	24 80			754 bu.	640 90	65½ bu.	56 00	719½ bu.	675 87		
Fodder corn					30 tons.	120 00	10 tons.	40 00			20 tons.	80 00
Beets	35 tons.	117 00			22 tons.	88 00	35 tons.	117 00			22 tons.	88 00
Hay	20 tons.	140 00	25½ tons.	349 73	58½ tons.	585 00	61½ tons.	649 73			42½ tons.	425 00
Fodder	600 shk.	120 00			1,580 shk.	316 00	600 shk.	120 00			1,580 shk	316 00
Straw	35 tons.	140 00			30 tons.	90 00	35 tons.	140 00	9 tons.	20 50	25 tons.	75 00
Potatoes			11½ bu.	8 48	204½ bu.	68 85	11½ bu.	8 48	188½ bu.	58 25	16 bu.	5 60
Milk					14,328 gal.	3,665 02				3,138 57		
Labor								2,893 79		193 21		

REMARKS.

The total disbursements for the year, as shown in statement C, amount to $5,586.43. This sum includes the payment of accounts for labor, material, repairs, etc., contracted prior to November 15, 1884, amounting in all to $1,395.32. Hence the expenditures for the year ending November 1, 1885, would be $4,191.11.

LABOR.

From statement C it will be seen that the total amount paid for labor during the year is $3,036.00. This sum includes the balance of the old labor account of $404.19, the labor expense for repairing barn amounting to $44.81, as well as the reimbursements for labor done for the university and several of the professors, amounting to $193 21.

Hence the expense for labor on the farm, including the expense of milking and delivering milk for the year ending November 1, 1885, is $2,393.79. The expense for milking and delivering milk for the same time was, as can be deduced from statement C, $1,079.56, making the current labor expense for the farm proper $1,314.23.

IMPROVEMENTS AND IMPLEMENTS.

Owing to the breaking of beams and joists, and the decay of posts, the barn and granary, immediately over the cow stables, had become unsafe, and it was found necessary to strengthen the barn before harvesting the hay and wheat. The posts were sawed off even with the top of the stable floor, and the stone pillars built higher. The number of joists, the two middle rows of posts and the beams overhead were doubled. New beams and posts were also placed under the granary. The floor of the cow stable was also repaired, where the sleepers had rotted away.

The cost of these repairs is as follows:

For lumber	$62 55
" labor of carpenters	40 00
" " " stone mason	4 81
" use of jack-screws	5 00
Total	$112 36

Owing to the severe weather of last winter the soil was very soft and porous when spring plowing commenced. It was impossible to make the old sulkey plow work in this light soil, and after a fair trial it was abandoned, and a new Gilpin ulkey plow purchased at a cost of $45.

HAY.

The amount of hay on hand last fall was inadequate to feed the stock through the winter. Twenty-five and one-half tons of hay were purchased, varying in price from $10 to $18 per ton, the total cost being $349.73. Only one field of 7½ acres was in meadow. This field yielded 16 tons of mixed clover and timothy hay, and a second crop of 5 tons of clover hay before breaking up for wheat.

Of the two small islands near the river, one was sown to oats and the other to a mixture of oats and peas. Both fields were cut when the oats were in the milk, and the yield was as follows:

Oat hay, on 3½ acres	6½ tons.
Oat and pea hay, on 3 acres	6 "

This hay will be excellent to feed with corn-fodder and lawn hay in order to narrow the nutritive ratio of the feed for milch cows.

The first crop of hay cut on the lawn was of fair quality, and amounted to 25 tons. The second cutting in the fall was worthless.

The field from which the oat hay was taken, was plowed, harrowed and rolled One-half was drilled with sweet corn and the other half with field corn. The season having been favorable an enormous crop of fodder corn was obtained, which, since the failure of the pasture, is serving a very good purpose as feed for the dairy cows

BEETS.

Last year three varieties of sugar beets were raised, namely, Lane's Imperial, Golden Globe and Golden Tankard. As these varieties were grown under exactly the same conditions, it was thought desirable to know if there was any marked difference among them in their food value. Accordingly an analysis was made of each variety, a comparatively large number of the roots being taken in each case to secure an average of the whole crop. The results of the analysis are as follows:

	Imperial—Sugar beet.	Golden Globe—Sugar beet.	Golden Tankard—Sugar beet.
Water	87.24	89.78	90.76
Ash	0.93	0.93	0.92
Protein	1.76	1.78	1.89
Crude fiber	0.88	0.78	0.71
Nitrogen—free extract	9.13	6.68	5.67
Fat	0.06	0.05	0.05
Total dry organic matter	11.83	9.29	8.32

From the analysis it will be seen that the Imperial sugar beet is by far the best of the three varieties, and accordingly this variety was selected for planting last spring. The beets were grown upon the same field which produced the previous crop, except that the size of the field was increased to two acres. The following notes in connection with the raising of crop may be of interest:

May 16 to 18.	Plowing, 2 days	$6 00
" 19.	Harrowing and rolling, ¾ day	2 25
" 20.	Planting, hand-drill, 1 day	1 40
June 12–13.	Cultivating, 1½ days	3 30
" 16–19.	Hoeing and trimming, 16¾ days	23 55
" 26–27.	Cultivating, 1¾ days	3 84
July 13.	" 1 day	2 20
October 6–10.	Pulling, 6¼ days	8 75
" 6–10.	Carting to cellar, 2½ days	7 50
	Total cost of beets in cellar	$58 79
Number of tons of beets obtained		22
Cost of beets per ton		$2 67
Food value of beets per ton		3 44

The food value of the sugar beets is calculated from the analysis given of last year's crop on the assumption that protein and fat are of equal money value, and the value of either is four times as great as the carbhydrates, and that good timothy hay, containing the following percentages of digestible nutrients, viz.: protein, 5.8; carbhydrates, 43.4. and fat, 1 4, is worth $14.84 per ton.

It is remarkable, that in so favorable a season as the last, and with all the care taken in preparing the soil and cultivating the growing beets, the yield should only be 11 tons per acre, scarcely half a crop. The roots were small, and during the summer the leaves presented the appearance of being diseased. No insect enemies could be discovered. The low yield was therefore ascribed to the seed and the condition of the soil It is well known that in countries where sugar is manufactured from beets, the custom is to grow small roots, with a maximum of cane sugar, and a minimum of nitrogenous matter. Seed obtained from stock of this kind would naturally produce small roots. The seed was purchased of a seedsman, and was of excellent quality so far as germination is concerned. The seed, however, can explain the difficulty only in part, as the new portion of the field, which was in sod the year before, yielded a much better return, although by no means a large crop. The roots were larger, and during the summer the plants did not show the unhealthy appearance of the others in so high a degree. Hence, the chief source of the low yield must be sought in the lack of plant food in the soil, presumably potash.

WHEAT.

Thirty-seven and one-half acres of wheat were harvested the past season. The following tabular statement shows the yield of the various fields and varieties of wheat, which must be considered a very flattering result, inasmuch as owing to the severity of last winter, the general wheat crop in this section of the state was almost a total failure:

Number of field.	Variety.	No. of acres.	Total yield.	Yield per acre.
1	Velvet Chaff	8	126 bushels	15.7 bushels.
2	"	14	272 "	18,7 "
3	"	5	107 "	21.4 "
4	Finley	4.5	145 "	32.2 "
5	Martin's Amber	1.5	36 "	24.0 "
6	Valley	4.5	68 "	15.1 "

Average, 20.1.

CORN.

Two varieties of corn were grown, the Leaning and a variety of white corn, which has not been identified. In all about sixty-five acres were planted, yielding 3,350 bushels of corn. As not all of the corn has been gathered, this yield is estimated in part. From the experiment station about 350 bushels of corn were received, making the total amount of corn 3,700 bushels for the present season.

The white corn was planted on the bottom land, and the Leaning on upland. Although the experience of last year on the university farm with Leaning corn was not such as to recommend it for cultivation, yet it was thought desirable to give it another trial on account of the highly improved quality of the corn. From reports obtained at the experiment station, it seems that this variety is not so well adapted to rich bottom land, as it tends to grow rank stalks on this kind of soil and to mature slowly. It was thought that upland soil would counteract this tendency. The corn matured early, in fact was cut first, although a part of the white corn on the bottom land was planted first. The yield and quality of the corn was satisfactory in every respect, although, like all of the corn raised on the farm this year, it was injured to some extent by wind-storms during the summer. An accurate account of the field of Leaning corn was kept, and as the crop has been gathered and weighed, the results can be given:

Number of acres in field	16
Corn planted	May 14th and 15th
Began cutting	September 9th
Cost of plowing, 8 days	$24 00
" harrowing, 2½ "	7 50
" marking, 1 day	3 00
" planting, 1½ days	4 50
" cultivating, 16½ days	46 25
" cutting 359 shocks, 12 hills square, @ 7 cts	25 13
" husking	42 07
" hanging corn, 9½ days	28 50
" hanging fodder, 7 days	21 00
Total cost	$201 95

Value of 359 shocks fodder, @ 25 cts	89 75
Cost of corn	$112 20
Total yield of corn	935 bushels.
Cost of corn per bushel	12 cts.
Average yield per acre	58.4 bushels.

In calculating the cost, the wages for a man and team is placed at $3 per day. The other figures represent the amounts actually paid for the work done.

DAIRY.

The following description of the operations of the dairy on the university farm is given to show—

1. The actual results obtained during the year; and
2. The possibilities of a dairy business, when carried on by private enterprise and with an established and permanent retail custom.

A few general remarks must be premised in order to explain the discrepancies between the actual and possible earnings of the dairy, as given in the monthly statements and the summary for the whole year below.

The work of the dairy is done exclusively by students, with the exception of the winter feeding, which is done by the regular farm hands. The work thus furnished enables six students to work their way through the university at the same time.

The two morning milkers receive a compensation of eighteen cents per hour each, and the time required for bringing cows from pasture, milking, turning out, cleaning stable, washing milk cooler, when used, and putting feed in mangers, varies from 3 to 4 hours each.

The two evening milkers receive a compensation of fourteen cents per hour, and the time required varies according to circumstances, from 2½ to 4 hours.

The morning and evening drivers of the milk wagon receive respectively 40 cts. per trip and a commission of three per cent. on all of the money collected. The retail price of milk is 24 cents per gallon from May 1st to November 1st. During the rest of the year it is 28 cents per gallon. The receipts as given do not represent the amount of milk sold each month, as tickets are sold during one month and redeemed, in part at least, the month following. Neither do the total receipts for the year represent the actual amount of milk sold during the year, as it was discovered that a number of customers had procured from the drivers as high as five dollars' worth of tickets just before November 1st last year, when the price of milk was raised. These receipts, of course, were reported last year, and the milk for the same furnished during the winter months of this year. The practice of selling more than one dollar's worth of tickets at once has been strictly prohibited.

The university dairy labors under several disadvantages, which must be taken into account in giving public information in regard to the dairy business.

In the first place the students' club at the dormitory, and several smaller clubs are furnished milk throughout term time at the uniform price of 24 cents a gallon. In consideration of the comparatively large amount of milk taken by these clubs, the price is satisfactory. But still the dairy suffers a great pecuniary loss from these sources for the reason that during the winter vacation of practically three weeks, as well as during the long summer vacation, when the students leave in a body, a surplus of milk is left on our hands, for which no immediate sale can be found.

The students who work in the dairy, and board themselves, are furnished a pint of milk each twice a day, free of charge.

The weight of milk was determined after each milking. And as the value of the milk in the monthly statements given below is calculated from these daily weights, an explanation in regard to the relation of weight to measure is necessary. A gallon of milk weighs 8.6 lbs. In order to determine whether the number of gallons measured out by the drivers corresponded to the weight of the milk, divided by 8.6, the number of pints, quarts, etc., as measured by the driver, was accurately noted on several trips. It was invariably found that 9.1 lbs. of milk were required to make a gallon. The extra half pound for each gallon was measured away in the comparatively large rims of the measures used. A slight unavoidable loss is also due to dripping. Taking 9.1 lbs. for the weight of a gallon of milk, as retailed, the price of a pound of milk during the winter months, when milk sells for 18 cents a gallon, is 3.1 cents. During the summer months, when the highest retail price is 24 cents a gallon, the price of a pound of milk is 2.6 cents. These prices have been accepted in calculating the value of milk obtained, as given in the monthly statements:

NOVEMBER 15 TO 30.

Number of cows milked, 27. Owing to the excessive drouth of the summer, the pasture was short, and the cows were in poor condition. On November 18th, the weather grew cold. The cows were put up and fed the following rations, in which the mixed feed consisted of 2,000 lbs. bran, 1,400 lbs. corn and cobs, and 800 lbs. oats ground and mixed:

12 pounds	clover hay,	valued at	6 cents.
4 "	mixed feed,	"	4 "
12 "	corn fodder,	"	4 "
18 "	sugar beets,	"	6 "
	Cost of ration per cow per day		20 cents.

Maximum daily yield of milk	334 lbs.	
Minimum " "	283 "	
Average	220½ "	
Total yield for 15 days	4,908 "	
Receipts for sale of milk		$104 00
Cost of milking	$27 18	
" delivering milk	15 12	
" feed	64 80	
		107 10
Loss for 15 days		$3 10
Value of 4,908 pounds milk, @ 31 cents		$152 15
Cost of milking and delivering milk, ordinary wages	$30 00	
" feed	64 80	
		94 80
Possible earnings		$57 35

DECEMBER.

Number of cows milked, 26. On December 10th, 7 pounds of cornmeal were substituted for the 4 pounds of mixed feed above, making the value of ration per cow per day 21 cents. The condition of cows grew better continually on this ration.

Maximum daily yield of milk	312 lbs.	
Minimum " "	287 "	
Average " "	297 "	
Total yield for month	9,202 "	
Receipts for sale of milk		$261 00
Cost of milking	$54 13	
" delivering milk	32 63	
" feed	169 26	
		256 02
Earnings for month		$4 98
Value of 9,202 pounds milk, @ 3.1 cents		$285 26
Cost of milking and delivering milk, ordinary wages	$60 00	
" feed	169 00	
		229 00
Possible earnings		$56 26

JANUARY.

Number of cows milked, 24.

Maximum daily yield of milk	348 lbs.	
Minimum " "	248 "	
Average " "	314 "	
Total yield for month	9,733 "	
Receipts for sale of milk		$214 00
Cost of milking	$54 69	
" delivering milk	31 22	
" feed	156 24	
		242 15
Loss for month		$28 15
Value of 9,733 pounds milk, @ 3.1 cents		$301 72
Cost of milking and delivering milk, ordinary wages	$60 00	
" feed	156 24	
		216 24
Possible earnings		$85 48

FEBRUARY.

Number of cows milked, 23.

Maximum daily yield of milk	388 lbs.	
Minimum " "	335 "	
Average " "	355 "	
Total yield for month	9,947 "	
Receipts for sale of milk		$264 00
Cost of milking	$49 84	
" delivering milk	30 32	
" feed	135 24	
		215 40
Earnings for month		$49 60
Value of 9,947 pounds of milk, @ 3.1 cents		$308 57
Cost of milking and delivering milk, ordinary wages	$60 00	
" feed	135 24	
		$195 24
Possible earnings		$113 33

MARCH.

Number of cows milked, 22. Value of ration per cow per day, 20 cents, owing to feeding but 12 pounds of beets from 22d to end of month.

Maximum daily yield of milk	397 lbs.	
Minimum " "	354 "	
Average " "	378 "	
Total yield for month	11,570 "	
Receipts for sale of milk		$313 00
Cost of milking	$ 54 48	
" delivering milk	34 19	
" feed	136 40	
		225 07
Earnings for month		$87 93

Value of 11,570 lbs. milk @ 3.1 cents		$358 67
Cost of milking and delivering milk, ordinary wages	$60 00	
Cost of feed	136 40	
		196 40
Possible earnings		$162 27

APRIL.

Number of cows milked, 24; value of rations, owing to beets giving out on April 4, 18 cents.

Maximum daily yield of milk	380 lbs.	
Minimum " "	328 "	
Average " "	351 "	
Total yield of milk for month	10,544 "	
Receipts for sale of milk		$290 50
Cost of milking	$ 53 40	
" delivering milk	32 71	
" feed	129 60	
		215 71
Earnings for month		$74 79

Value of 10,544 lbs. milk @ 3.1 cents		$321 86
Cost of milking and delivering milk, ordinary wages	$60 00	
Cost of feed	129 60	
		189 60
Possible earnings		$132 26

MAY.

Number of cows milked, 25; cows turned out to pasture May 1st. Each cow received 3 pounds of bran per day; cost of bran, $15.00 per ton. From this date to end of year the cost of pasture is placed at one dollar per month per cow, making with the bran fed daily the cost of feed for each cow $1.67 per month.

Maximum daily yield of milk	464 lbs.	
Minimum " "	297 "	
Average " "	400 "	
Total yield for the month	12,409 "	
Receipts for sale of milk		$264 00
Cost of milking	$68 92	
" delivering milk	32 71	
" feed	41 75	
		143 38
Earnings for month		$120 62

Value of 12,409 lbs. milk @ 2.6 cents		$322 66
Cost of milking and delivering milk, ordinary wages	$60 00	
Cost of feed	41 75	
		101 75
Possible earnings		$220 91

JUNE.

Number of cows milked, 26.

Maximum daily yield of milk	480 lbs.
Minimum " "	412 "
Average " "	447 "
Total yield for month	13,428 "

Receipts for sale of milk		$334 50
Cost of milking	$71 01	
" delivering milk	33 62	
" feed	43 32	
		147 95
Earnings for month		$186 55

Value of 13,428 lbs. milk @ 2.6 cents		$349 13
Cost of milking and delivering milk, ordinary wages	$60 00	
" feed	43 32	
		103 32
Possible earnings		$235 81

JULY.

Number of cows milked, 22.

Maximum daily yield of milk	460 lbs.	
Minimum " "	369 "	
Average " "	406 "	
Total yield for month	12,637 "	
Receipts for sale of milk		$257 67
Cost of milking	$74 58	
" delivering milk	32 53	
" feed	36 74	
		143 85
Earnings for month		$103 82

Value of 12,637 lbs. milk @ 2.6 cents		$328 56
Cost of milking and delivering milk, ordinary wages	$60 00	
" feed	36 74	
		96 74
Possible earnings		$221 82

AUGUST.

Number of cows milked, 23.

Maximum daily yield of milk	424 lbs.	
Minimum " "	380 "	
Average " "	400 "	
Total yield for month	12,419 "	
Receipts for sale of milk		$254 23
Cost of milking	$70 91	
" delivering milk	32 42	
" feed	38 41	
		141 74
Earnings for month		$112 49

Value of 12,419 lbs. milk at 2.6 cents		$322 89
Cost of milking and delivering milk, ordinary wages	$60 00	
Cost of feed	38 41	
		98 41
Possible earnings		$224 48

SEPTEMBER.

Number of cows milked, 24.

Maximum daily yield of milk	435 lbs.	
Minimum " "	387 "	
Average " "	413 "	
Total yield for month	12,411 "	
Receipts for sale of milk		$250 00
Cost of milking	$68 43	
" delivering milk	31 50	
" feed	40 08	
		135 01
Earnings for month		$114 99
Value of 12,411 lbs. milk @ 2.6 cents		$322 68
Cost of milking and delivering milk, ordinary wages	$60 00	
Cost of feed	40 08	
		100 08
Possible earnings		$222 60

OCTOBER.

Number of cows milked, 24.

Maximum daily yield of milk	413 lbs.	
Minimum " "	320 "	
Average " "	360 "	
Total yield for month	11,177 "	
Receipts for sale of milk		$295 67
Cost of milking	$64 36	
" delivering milk	33 66	
" feed	41 75	
		139 77
Earnings for month		$155 90
Value of 11,177 lbs. milk @ 2.6 cents		$290 60
Cost of milking and delivering milk, ordinary wages	$60 00	
Cost of feed	41 75	
		101 75
Possible earnings		$188 85

SUMMARY FOR YEAR ENDING NOVEMBER 1, 1885.

Total yield of milk, 130,385 pounds = 14,328 gallons.

Receipts for sale of milk		$3,138 57
Cost of milking	$706 93	
" delivering milk	372 63	
" feed	1,118 94	
		2,198 50
Total net earnings on sale of milk		$940 07
To this amount must be added:		
For sale of thirteen calves for veal		81 05
For sale of two Jersey calves, less cost of recording them in A. J. C. C. Register		169 00
Value of seven Jersey calves on hand		475 00
Value of one Devon calf on hand		30 00
Total earnings of dairy		$1,695 12

Value of 130,385 lbs. milk		$3,665 02
Ordinary cost of milking and delivering milk	$690 00	
Cost of feed	1,118 94	
		1,808 94
Possible earnings on sale of milk		$1.856 08
Add sale of calves and calves on hand, as above		755 05
Total possible earnings		$2,611 13

No reference has been made to the barn-yard manure obtained in feeding the dairy stock through the winter, as many persons fail to appreciate the money value of this refuse matter, although it is of the greatest importance to the agriculture of our land and day.

DEPARTMENT OF HORTICULTURE.

Hon. I. B. Wing, Chairman Farm Committee, O. S. U.:

Dear Sir: I have the honor to submit herewith the annual report of the outdoor work of the Horticultural Department for the year 1884–5.

The report includes a statement of the means and facilities for teaching practical horticulture, together with a full statement of receipts and expenditures for the year.

The past season was quite favorable for the growth of fruits and vegetables, and had prices been as good as in former years, the department would have made a better financial showing than ever before. On account of the wet season, the cost of caring for crops was considerably increased, while prices were unprecedentedly low.

Something has been done in the line of permanent improvements and extensions, but not as much as desired.

As has been stated heretofore, the design of the gardens, primarily, is not to make money, but to illustrate methods of culture and general management. The only way that horticultural operations can be practically illustrated is by common business methods. With the means at hand, it has not been possible for the department to do any strictly experimental work. The expense of this work has been met by the Experiment Station. As a means for the study of varieties and methods of cultivation, these experiments afford unequaled facilities, and have been of great value to students. An account of this work will be published in the station report.

VEGETABLE GARDEN.

The vegetable garden comprises about six acres. Nearly all of the crops usually grown in market gardens are cultivated. The standard varieties are grown most largely, but many others, especially those of recent introduction, are planted for purposes of study and comparison.

The following vegetables were grown during the past season:

EARLY CABBAGE.

Thirty so called varieties were grown, but many were duplicated by procuring seeds from different sources, making eighty lots, or samples, in all. The object in procuring so many samples was threefold:

1st. To determine synonyms.
2d. To ascertain the best varieties.
3d To compare stock from different seedsmen.

It will be seen that the experiments take a wider range and are much more comprehensive than it is possible for private growers to make.

The determination of synonyms is especially important, because vegetable nomenclature is in such a confused state that it is hardly possible to select any desired variety from a seedsman's catalogue by the name alone. The same name is used for distinct varieties by different seedsmen, and old varieties are sent out under new names again and again.

The trial of seeds from different sources appears to be of even more importance, for the reason that good seed can be grown only by means of the most rigid and careful selection of stock. Our trials show that the stock sent out by some dealers bear evidence of careful selection, always giving good results, while that received from others is utterly worthless, bringing only vexation and loss to the purchaser. These statements apply with special force to varieties of cabbage, but are true to some extent concerning all vegetables.

About one hundred plants of each sample of early cabbage were grown, making eight thousand in all. Nearly all formed heads, but, as the market was overstocked, they were sold at about two cents per head, or scarcely enough to cover the cost of production.

The earliest and best variety was Early Wakefield. Seed procured from Francis Brill gave the best results. That from Henderson, Landreth, Ferry, and Livingston was also good. Seed under the same name procured from Tillinghast proved to be a later variety, while that from Atlee, Burpee & Co. was a worthless mixture of early and late varieties.

Early summer is the best variety next in succession. Stock from different sources showed much less variation than most other varieties. All were good, except that from Atlee, Burpee & Co., which was a mixture of late varieties.

Early Etampes is quite early, but the heads are usually soft and unsalable, Henderson's Premier and Landreth's Earliest are forms of this variety.

There are several strains of Early Flat Dutch, among which may be favorably mentioned Chase's Excelsior, from Livingston, Fottler's Brunswick, from Tillinghast, and Gregory's Early Deep Head.

LATE CABBAGE.

The same general plan is followed as with early varieties. Some of the leading sorts were grown more largely, however. About one acre was planted after early potatoes. The cost of growing was somewhat less than for early crop, and the price received was more, about four cents per head, giving a margin for profit. A considerable proportion of the plants formed no heads.

The varieties that may be most favorably mentioned are Henderson's Selected Flat Dutch, Late Drumhead from Tillinghast, Louisville Drumhead from Brill, Bloomsdale Flat Dutch from Landreth, and Surehead from several sources. All of the European seed gave very poor results. But few of the plants formed heads, and those that did were imperfect, the heads being soft and showing a tendency to rot. A number of samples bought for American seed, showed the same tendency, but it might be unjust to assert that they were not what they were claimed to be.

SWEET CORN.

Thirty-five varieties were grown. Early Marblehead and Evergreen were planted most largely for market, the former being the best early, and the latter the best late variety. The new varieties thought to be worthy of further trial are Ford's Early Sweet, Corey, Pee & Kay, and Golden Sweet.

TOMATOES.

About three-fourths of an acre of Acme were planted, and thirty-two varieties for trial. Although the cost of growing tomatoes is small, the low price at which they usually sell precludes a very great margin for profit. A few of the earliest are usually sold at profitable prices, but the main crop seldom brings more than thirty cents per bushel. The cost of production was a little more than fifteen cents per bushel. None of the new varieties are worthy of the praise that has been lavished upon them by the introducers. The Acme, Perfection, and Favorite are as good, if not better, than any of those of recent introduction.

BEETS.

Forty-five varieties were grown for trial, and about one thirty-second part of an acre for market. The old varieties, Egyptian and Bassano, are quite as good as any of the new varieties. None can be mentioned that are likely to supersede these well known kinds.

PEAS

Sixty-eight samples, or about forty varieties, were planted. None were grown for market. Many of the so-called varieties are synonyms. The Early Philadelphia has been renamed a dozen times, or more, which is an indication that it is one of the best early varieties. American Wonder, Telephone, Stratagem, Horsford's Market Garden, and Marrowfat are among the best of those tried.

CELERY.

Eight varieties were on trial, of which Dwarf, White and Golden Dwarf may be mentioned as the best. Several years' experience has proved that this vegetable can no longer be profitably grown in our soil and climate. We cannot successfully compete with those who live in more favored localities, hence we have planted very little for market.

CARROTS.

About one-eighth of an acre was sown with the Danvers, which has been found to be the best variety. Thirty varieties were on trial, but none except the one mentioned and the Geurande seemed to have any special merits.

PARSNIPS

About the same area is devoted to parsnips as to carrots. The only variety grown is the Hollow Crown.

RADISHES.

These are grown only in small lots for trial. The varieties found to be most desirable, among twenty-five on trial, are long Scarlet Short Top, Beckett's Improved Chartiers, French Breakfast, Yellow Summer and White Lady Finger.

LETTUCE.

Early Curled Simpson, Hanson, Black-seeded Simpson and Deacon were found to be the best of forty varieties tested.

ONIONS.

Half an acre was devoted to this crop. The work was largely experimental and consisted in tests of varieties of seeds from different seedsmen, and of fertilizers. The Yellow Danvers is the best variety for general cultivation. More decided results were obtained in comparative trials of seed from different sources than with the various kinds of fertilizers. No fertilizer gave any marked increase in yield, but decided differences in yield were noticed upon the series of plots where seed from different sources were sown. The results have not been tabulated, but will be given in the station report.

FRUIT GARDEN.

APPLES.

The apple orchard, containing twenty-five varieties, has not come into bearing. It is doubtful if it will ever be a success so far as productiveness is concerned. It should, however, yield some good results in the way of experiment. The trees were carefully pruned last spring, and have made a moderately good growth. Some of the trees are vigorous and promising, but many of them show the effects of the severe frosts of the past two winters. It is evident that only the very hardiest varieties will flourish in this climate. Next spring some of the oldest trees will be grafted with such new hardy varieties as appear worthy of trial in this latitude. It would seem to be a well established fact that apple trees are more likely to fail in fruitfulness on river bottom land than elsewhere.

PEARS.

The dwarfed varieties bore a partial crop the past season. These are old standard sorts, the qualities of which are well-known. None of the newer varieties have come into bearing. Pears do little, if any, better than the apples on our soil, and the cultivation of this fruit is not likely to be attended by either satisfaction or profit.

About one half of the orchard, which comprises a little more than an acre, and includes twenty-five varieties, is seeded down; the remaining half is set with raspberries, and is kept well cultivated.

CHERRIES.

The Early Richmond cherry trees, which comprise the greater part of the cherry orchard, bore a moderate crop, but the fruit was quite wormy and imperfect. The trees have not yet fully recovered from the effects of the winter of 1883-4.

PLUMS.

An effort was made to combat the curculio with kerosene emulsion, but was unsuccessful. Jarring the trees is probably the most efficient remedy.

QUINCES.

The quince orchard has borne no fruit, the trees not having recovered from the effects of severe freezing two years ago.

GRAPES.

The severe winter and rot destroyed the grape crop. The vines will be pruned and protected, and sufficient bunches of each variety covered with paper bags to make comparison possible. The collection comprises about seventy-five varieties.

BLACKBERRIES.

Ten varieties have been planted, but have not borne fruit. The old patch was plowed up, because the plants were so badly winter killed every season.

RASPBERRIES.

About one acre each of red and black are planted. These bore a good crop, but the plantation is becoming old and needs renewing. New plantations have been set, and will be extended in the spring. Turner, Gregg and Ohio are the varieties most largely grown. Of the newer varieteis, Souhegan, Tyler, and Marlboro are the most promising. Thirty varieties are on trial.

GOOSEBERRIES.

These yielded fair returns, perhaps as good as any other crop for the labor expended. Houghton and Smith's Improved are the best of six varieties on trial.

CURRANTS.

The crop was light, but sold readily at good prices. The Red Dutch and White Grape gave the best crops. Fay's Prolific, a new variety, has not yet shown as great merits as are claimed for it. White Hellebore is successfully used to destroy the currant worm.

STRAWBERRIES.

About one and one-half acres are planted. It will be necessary to plant new beds and plow up the old ones, which will be done next season. More than one hundred varieties are on trial, but few of them are worthy of special commendation. Crescent Seedling, Sharpless, Cumberland Triumph, Miner's Prolific, and Windsor Chief are planted for the main crop.

The new varieties most worthy of mention are Jewell, Parry, Cornelia and Ohio. A number of varieties have been sent here for trial by introducers, concerning which reports will be given in due time. A large number of seedlings has also been grown, which will come into bearing next season. Our list of strawberries is now very complete. New varieties are obtained as soon as possible, in many cases before they are offered for sale or introduced to public notice. These collections afford unequaled facilities for comparison, and have attracted considerable attention from horticulturists in various parts of the country.

NURSERY.

It is our aim to keep a small stock of thrifty young fruit, forest and ornamental trees. Such a collection is a very essential adjunct to the gardens. To teach the operations of budding, grafting, pruning, transplanting, etc., requires a constant supply of nursery stock. This stock is also serviceable in replenishing our orchards and in furnishing plants for the university grounds in general. Seeds of our most valuable forest trees and shrubs are sown every season, and we hope to extend the work of raising seedling fruits.

NEW TOOL ROOM.

A new building recently erected by the experiment station, which is conveniently located for the purpose, will be used in part by the horticultural department for the storage of seeds, tools, implements, etc.

ENLARGING THE GARDEN.

The field lying north of the present fruit garden will be used for the purpose of extending our outdoor horticultural operations. The design is not to plant larger areas, but to set new plantations, and to put the grounds into better shape than it has been possible to do in the past. The old vegetable garden east of the college buildings is to be devoted to experiments with grasses and other forage crops.

STUDENT LABOR.

The labor in this department is performed partly by regularly employed workmen, and partly by students. As much employment is given to students as possible, but it is found that the work cannot be carried on without much additional help. Those students who are pursuing the study of horticulture, and who can work regularly, are given the preference. The greatest difficulty in the way of employing students is their inability to work at regular specified hours. Work can usually be given to those who can agree to come regularly, but it is often found impracticable to furnish employment without previous notice of intention to work.

SCOPE OF THE DEPARTMENT.

This report could easily have been amplified, but the features briefly outlined will suffice to give an intelligent idea of the outdoor means of illustration in horticulture. They are by no means perfect, yet any earnest student can obtain valuable assistance from them in preparing himself to practice this art.

We are gratified with the cordial co-operation and hearty sympathy of many of the most earnest horticulturists of the state. From all such, we welcome communications and solicit counsel and suggestions. The department has had no means at its disposal, save what it received for the sale of products. Such being the case, no elaborate experiment could be inaugurated, nor could much be done for the sake of appearance. In this respect, we are obliged to keep within the limits of profitable labor.

ACKNOWLEDGMENT.

To Mr. W. J. Green I am greatly indebted for the progress made and measure of success achieved in the department of practical horticulture.

Tabulated statement of the quantity sold and amount received for the various crops of the fruit and vegetable garden:

	Quantity.	Value.
Strawberries	5,862 qts.	$516 20
Raspberries	3,822 "	345 80
Currants	165 "	13 20
Gooseberries	773 "	46 38
Cherries	205 "	16 00
Tomatoes	85 bu.	24 99
Potatoes	195 "	77 83
Plants, cabbage, tomato, etc		28 82
Seeds, tomato, etc		60 80
Onions	50 bu.	26 10
Cabbage	1,200 heads.	42 54
Vegetable oysters	16 bu.	6 55
Parsnips	51 "	20 90
Carrots	56 "	22 50
Miscellaneous items		29 58
Total		$1,278 19

Statement of the aggregated receipts and expenditures of the fruit and vegetable gardens of the Ohio state university for the year ending October 31, 1885:

RECEIPTS.

From produce sold	$1,278 19
Balance on hand at close of last year	14 70
Total receipts	$1,292 89

EXPENDITURES.

Student labor	$214 04
Foreman and transient labor	612 67
Salary of superintendent	275 00
Tools, repairs, fertilizers, etc	168 66
Total expenditures	$1,270 37
Balance on hand	22 52

Wm. R. Lazenby.

TREASURER'S REPORT.

Hon. Thos. J. Godfrey, *President Board of Trustees of the O. S. University:*

Dear Sir: I submit herewith my first annual report. To facilitate comparison with previous reports of the finances of the university, I append the following statements:

I. Recapitulation.
II. Statement of the endowment fund—held by the state and pledged to the support and maintenance of the university.
III. Statement of gross receipts and disbursements arising from sale of Virginia military lands, from 1871 to date.
IV. Detailed statement of cash receipts during current fiscal year.
V. Detailed statement of cash disbursements during current fiscal year.
VI. Statement of appropriations made by the board of trustees, and a list of officers and employes, with salaries of each.

Respectfully submitted.

F. W. Prentiss, *Treasurer.*

Columbus, Ohio, *November* 15, 1885.

STATEMENT I.

RECAPITULATION.

F. W. Prentiss, *Treasurer, in account with Ohio State University:*

Dr.

To cash transferred by H. S. Babbitt, ex-Treasurer	$7,661 82	
" " "	531 97	$8,193 79
Received from state treasury—		
Being balance of interest on the endowment fund to January 1, 1885	$11,135 34	
Interest accrued from January 1, '85, to July 1, '85	16,135 34	27,270 68
Received from state treasury—		
Being balance of general assembly appropriation for removing and refurnishing library		1,618 21
Received from students—		
Being Winter term fees, 1884 to 1885	$1,598 50	
Spring " "	1,389 50	
Fall " "	2,082 00	5,070 00
Received from Virginia military lands—		
Sundry notes, payments on notes, and interest on same	$1,612 07	
Cash payments on lots sold	67 00	1,679 07

STATEMENT I.—RECAPITULATION—Continued.

To cash received from President W. H. Scott	$423 50	
Professor T. C. Mendenhall	80 00	
Professor Samuel C. Derby	240 00	
Professor R. W. McFarland	315 00	
Professor A. H. Tuttle	235 00	
Professor N. S. Townshend	300 00	
Professor Geo. W. Knight	37 50	
Professor Benj. F. Thomas	42 50	
		1,673 50
(Being for rents from residences belonging to the Ohio State University).		
Received from Prof. N. S. Townshend		127 90
(Being unexpended balance of appropriation advanced for purchases in Europe).		
Received from W. R. Lazenby, director		500 00
(Being for analysis for agricultural experiment station by Professor Weber).		
Received from Prof. S. A. Norton		61 36
(Being amount collected from students for supplies in chemical laboratory).		
		$46,194 51

Cr.

By cash. Paid for salaries of faculty, teachers, officials and regular labor	$32,036 25	
Paid for expenses of board trustees	607 40	
Paid for insurance against fire	81 00	
Paid for fuel	1,479 23	
Paid for telephone service	125 00	
Paid for library	1,490 60	
Paid for department supplies	2,104 39	
Paid for attendance at farmers' institutes	127 55	
Paid on account of other current expenses	5,384 03	
		$43,435 45
Paid on account of expenses incident to Virginia military lands	$488 48	
Paid on account of three new residences (from funds derived from Virginia military lands)	853 06	
		1,341 54
To balance— Being cash in my hands this day		1,417 52
		$46,194 51

STATEMENT II.

STATEMENT OF THE ENDOWMENT FUND, IN ACCORDANCE WITH THE PROVISIONS OF AN ACT PASSED FEBRUARY 10, 1870, O. L., VOL. 67, PAGE 15, AND SECTIONS 3438 AND 3446, R. S.

The principal of the endowment fund is		$537,841 46
The annual income from above is interest computed @ 6 %, payable one-half on 1st July, and one-half 1st January of each year, and amounts to		32,270 48
The following payments of interest have been made upon same from the state treasury:		
Dec. 20, 1884. Being balance of interest to January 1, 1885	$11,135 84	
March 21, 1885. Being on act. of interest due July 1, 1885	5,000 00	
April 16, 1885. " " " "	5,000 00	
June 29, 1885. Being balance of interest to July 1, 1885	6,135 84	
		$27,270 68

STATEMENT III.

VIRGINIA MILITARY LAND SALES.

Cash receipts into treasury from proceeds of sales to November 15, 1884 (as reported on page 71, report of 1884)		$57,521 81
Cash receipts during fiscal year, 1884–5		1,679 07
Total receipts to November 15, 1885		$59,200 88
Expenses incident to sale of these lands to November 15, 1884, as reported on page 71, report of 1884	$20,368 49	
Expenses during fiscal year, 1884–5	488 48	
Total expenses to November 15, 1885		$20,856 97
Balance, being net receipts to November 15, 1885		$38,343 91
There has been paid into the State Treasury from these receipts to the credit of the "Endowment Fund," as reported on page 71, report of 1884		$13,665 84

STATEMENT IV.

DETAILED STATEMENT OF RECEIPTS, BY F. W. PRENTISS, TREASURER, DURING FISCAL YEAR ENDING NOVEMBER 15, 1885.

Date.	From whom received.	On account of.	Amount.
1884.			
Nov. 18	Henry S. Babbitt	Cash transferred	$7,661 82
21	"	"	531 97
22	C. A. Barton, Agt	Note, W. M. Wormley & int. } $72 50 8 96	81 46
	"	Paym't note, J. G. Noll	30 00
Dec. 3	"	" Sam'l Johnson	45 00
	"	Note, Wm. Warmsley	113 00
	"	" E. East	26 10
4	"	Notes, M. D. Hibbs	90 00
	"	Paym't on note, L. M. Beaver	32 00
6	A. H. Tuttle	3d and 4th installment rent	70 00
	T. C. Mendenhall	3d installment rent	40 00
	Sam'l C. Derby	3d "	20 00
20	State Treasury	Being balance of interest on the endowment fund to Jan'y 1st, '85	11,185 34
1885.			
Jan. 20	W. H. Scott	2d and 3d installment rent	77 00
	Sam'l C. Derby	4th installment rent	20 00
	R. W. McFarland	3d "	45 00
	T. C. Mendenhall	4th "	40 00
	C. A. Barton, Agt	Int. 4 and 5 year notes, L. M. Beaver	4 00
	"	Balance 4 year note, "	47
Feb'y 2	"	Note, E. Simpson and int. from 11th March, 1881 } $203 00 46 82	249 82
	"	Notes, Van Hetterbram and interest } $25 87 25 88 12 27	64 02
	W. H. Scott	4th and 5th installment rent	77 00
	R. W. McFarland	5th "	45 00
	S. C. Derby	5th "	20 00

STATEMENT V.

Detailed Statement of Disbursements, by F. W. Prentiss, Treasurer, during Fiscal Year ending November 15, 1885.

Date.	To whom paid.	For what purpose.	No.	Amount.
1884. Nov. 17	H. S. Babbitt	Notary fees	1	$2 60
18	Edward Orton	Supplies Geological dep't	2	36 50
	J. B. Jamison	Trustees expenses	3	17 50
	S. H. Ellis	"	4	19 35
	T. J. Godfrey	"	5	17 10
	Thos. A. Cowgill	"	6	14 50
	Peter H. Clark	"	7	21 20
	Noble Patterson	Repairs, mason work	8	21 00
19	Chas. A. Roth	Salary to date	9	40 00
	H. A. Weber	Salary Nov. '84, installment	10	200 00
	T. Cottingham	7 days' labor as mason's helper	11	12 25
	A. P. Blocksom	Supplies for battalion	12	16 58
	Aston & Huff	Repair'g stoves at Dormitory	13	74 71
	W. H. Scott	Exp. charges, postage and carriage	14	13 40
	Isaac C. Aston	Balance account on contract papering dormitory	15	81 50
	Glock & Talmadge	Supplies Zoological dep't	16	20 26
	Hershiser, Snyder & Dundon	Lumber for boxing pipes	17	2 90
	F. E. Rossette	Kalsomining ceilings dormitory	18	18 50
	A. H. Tuttle	Salary balance November, 1884, installment	19	112 50
20	E. H. Mark	Express charges	20	60
	Adams Express Co	"	21	25
	Wm. Fish & Sons	Stone post and flag, Physical department	22	8 25
	Door, Sash & Lumber Co.	Lumber for porch, Professor Mendenhall	23	57 33
	Jas. Kelley	Salary to 1st November, 1885	24	35 00
	R. W. McFarland	Pay-roll for laborers	25	126 71
	Geo. Rhoades	44½ hours' painting, McFarland's stable	26	7 79
	R. O. Smith & Co	Lumber for McFarland's stable	27	1 44
	Alexis Cope	Carriage hire for Trustees	28	3 00
	F. & M. Keffer	Supplies Physical dep't	29	11 40
	Braun & Bruck	Equipment for Agricultural Chemist	30	18 79
	Abbott, Horn & Co	Hardware for McFarland's stable	31	8 03
	Glock & Talmadge	Supplies for Physical dep't	32	29 00
	Devers & Ryan	Attorney's fees Va. military land cases	33	175 00
	Shepard & Co	Brushes, brooms, soap, etc	34	17 75
	J. R. McDonald	Plastering, etc., President Scott's residence	35	2 00
	Wm. Fish & Sons	Stone steps	36	8 50
	Evan Titley	Plumbing, dormitory	37	4 45
	W. U. Telegraph Co	Telegrams	38	50
	N. W. Lord	Salary Nov., '84, installment	39	100 00
	W. H. Scott	" "	40	275 00
	Edward Orton	" "	41	225 00
	Sidney A. Norton	" "	42	225 00
	N. S. Townshend	" "	43	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1884. Nov. 20	R. W. McFarland	Salary Nov., '84, installment	44	$225 00
	S. W. Robinson	" "	45	225 00
	T. C. Mendenhall	" "	46	225 00
	S. C. Derby	" "	47	225 00
	W. R. Lazenby	" "	48	225 00
	J. R. Smith	" "	49	225 00
	A. P. Blocksom	" "	50	50 00
	C. U. Weld	" "	51	120 00
	Alice K. Williams	" "	52	90 00
	Michael Dillion	to December 1, 1884	53	62 50
	J. E. Randall	Nov., '84, installment	54	20 00
22	Geo. W. McCoard	" "	55	100 00
24	C. N. Brown	" "	56	100 00
	Alexis Cope	to December 1, 1884	57	100 00
	H. A. Weber	Nov., '84, installment	58	200 00
29	F. W. Prentiss	to Dec. 1, 1884	59	16 66
	M. N. Mix	Nov., '84, installment	60	12 50
Dec. 20	Jas. Kelly	to Dec. 1, 1884	61	35 00
6	David O'Brien	Nov., '84, installment	62	70 00
	A. H. Tuttle	Dec., '84, installment	63	225 00
10	H. H. Parry	to Dec. 1, 1884	64	50 00
20	Emma Lehner	Nov., '84, installment	65	37 50
16	Chas. Roth	to Dec. 19, 1884	66	40 00
19	W. H. Scott	Dec., '84, installment	67	275 00
	same	Expenses trip to Washington	68	43 90
20	Emma Lehner	Salary Dec., '84, installment	69	12 50
	H. H. Parry	to Jan'y 1, 1885	70	100 00
	J. E. Randall	Dec., '84, installment	71	40 00
	C. N. Brown	" "	72	100 00
	Geo. W. McCoard	" "	73	100 00
	David O'Brien	" "	74	70 00
	M. N. Mix	" "	75	12 50
	F. W. Prentiss	to Jan'y 1, 1885	76	33 33
	Alexis Cope	" "	77	100 00
	Alice Williams	Dec., '84, installment	78	90 00
	Cynthia U. Weld	" "	79	120 00
	A. P. Blocksom	" "	80	50 00
	Henry A. Weber	" "	81	200 00
	W. R. Lazenby	" "	82	225 00
	J. R. Smith	" "	83	225 00
	Sam'l C. Derby	" "	84	225 00
	N. W. Lord	" "	85	100 00
	T. C. Mendenhall	" "	86	225 00
	S. W. Robinson	" "	87	225 00
	R. W. McFarland	" "	88	225 00
	N. S. Townshend	" "	89	225 00
	S. A. Norton	" "	90	225 00
	Edward Orton	" "	91	225 00
	T. C. Mendenhall	Supplies Physical dep't	92	21 05
22	J. W. Queen & Co	" "	93	191 75
	R. O. Smith & Co	Supplies Physical and Zoological dep't	94	4 68
	Glock & Talmadge	Not issued	95	....
	Door, Sash & Lumber Co.	Lumber for general repairs	96	7 76
	S. P. Watt	Supplies Mech. dep't, $3.43; Agricultural dep't	97	8 47
	J. & H. Berge	Supplies Mining dep't	98	55 45
	J. D. Riggs	13 hrs. labor, @ 20c per hr., Mechanical dep't	99	2 60

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1884.				
Dec. 22	Abbott, Stoner & Horn	Glass for general repairs	100	$19 16
	W. H. Scott	Postage and envelopes, $2.40; repairing gas machine	101	6 15
	Col. Brass & S. P. Wks	Repairing boilers, pipes, etc.	102	18 20
	Glock & Talmadge	Supplies Mechanical dep't	103	2 70
	Louis Fink	Painting Prof. Mendenhall's porch	104	20 00
	Fred'k Abbe	800 flower pots	105	10 50
	Wassall Fire Clay Co	Material for repairing gas retorts	106	11 80
	McCune, Lonnis & Griswold	Supplies Physical dep't	107	15 60
	Cherrington & Robinson	Rubber stamp for Treasurer	108	2 00
	Seibert & Lilley	One small blank-book	109	75
	J. & G. Butler & Co	Two bbls. cement	110	2 80
	Geo. Rhoades	23 hrs. work, @ 15c per hr., on campus	111	3 52
	Schroth & Zapp	Window-shades, Chemical department	112	3 50
	Col. Transfer Co	Freight and drayage, pkg., Mining dep't	113	3 79
	Hershiser, Snyder & Dundon	Lumber, Mechanical dep't	114	17 10
	Col. & H. Coal & Iron Co.	On account for coal delivered	115	269 57
	Alex. K. Rarig	Door frame, etc., for gas furnace	116	10 59
	E. B. Armstrong	Chimney tops, dormitory	117	52 05
	R. O. Smith & Co	Lumber for general repairs	118	9 41
	Kaiser & Bros	Labor and material repairing roofs	119	119 87
	Stitt, Price & Co	27 m. lime, @ 10c; drayage, 25c	120	2 95
	Western Union Tel. Co	Messages	121	40
	D. Y. Murdoch	Advertising in Ohio Conf. Minutes	122	4 00
	Noble Patterson	Balance for repairing smoke-stack	123	10 75
	Royce & Pulling	Bolts and washers for gas retorts	124	1 24
	Evan Titley	Plumbing at green-house	125	30 21
	Henry A. Ward	Skulls for Physical and Zoological dep't	126	47 25
	Henry L. Osborn	Supplies, Physical and Zoological dep't	127	49 65
	P. Smith & Co	Supplies, Physical and Zoological dep't	128	3 05
	Bausch & L. Optical Co	Supplies, Physical and Zoological dep't	129	45 43
	J. M. & W. Westwater	Supplies, Physical and Zoological dep't	130	7 25
	Jas. W. Queen & Co	One movement de horologe, etc	131	167 50
	Aston & Huff	Supplies, Physical and Zoological dep't	132	3 75
	R. Jones & Son	Supplies, Physical and Zoological dep't	133	55 33
	Wm. Prior, Jr., & Co	Supplies, Physical and Zoological dep't	134	3 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1884.				
Dec. 22	R. W. Linen	Supplies, Physical and Zoological dep't	135	$5 50
	R. & J. Beck	Supplies, Physical and Zoological dep't	136	24 89
	A. H. Tuttle	Supplies, Physical and Zoological dep't	137	26 37
26	Fred. Weigold	90^{63} ft. slate paper, Mechanical dep't	138	5 50
	S. P. Watt	Salary, Sept., Oct., Nov. and Dec., '84	139	40 00
1885.				
Jan'y 8	Col. Water-works	Water-meters and rent to Nov. 1, 1884	140	357 39
13	L. D Myers, P. M	500 6c and 2,500 2c-stamps	141	80 00
16	Jas. B. Jamison	Trustee expenses	142	18 60
	Jas. Kelly	Salary January 1, 1885	143	35 00
	Thos. A. Cowgill	Trustee expenses	144	18 45
17	A. H. Tuttle	Salary Jan'y, '85, installment	145	225 00
	J. D. Riggs	Work at Chemical dep't	146	11 25
19	Evan Titley	Plumbing at Prof. Mendenhall's	147	47 17
	Geo. H. Twiss	Stationery for University	148	17 03
	Chas. A. Roth	Salary to Jan'y 1, 1885	149	40 00
	D. W. Groff	Drayage, pkg., Physical department	150	50
	Col. Brass & S. P. Works	Fittings, steam pipes	151	36 82
	Edward Orton	Expenses attending Farmers' Institute	152	14 50
	The Halm & Bellows Furniture Co	20 tables, @ $1.60, for lunch-room	153	32 00
	C. Eldridge & Son	One doz. brooms	154	3 25
	McCune, Lonnis & Griswold	Shovels, etc	155	12 46
	Cent. Union Telephone Co	Telephone rent to April 1, 1885	156	25 00
	Col. Gas Light & Coke Co	On account of coal delivered	157	8 24
	Col. Post-office	Postage on catalogues, University	158	30 00
	Geo. Ruhlen	Supplies for battalion	159	25 25
	S. P. Watt	Balance account for supplies	160	1 68
	Col. & H. Coal & Iron Co.	On account coal delivered	161	211 72
	J. E. Randall	Supplies for Physical dep't	162	1 85
	Western Union Tel. Co	Message to Celina	163	30 00
	Kilbourne, Jones & Co	Supplies, Chemical, $5.45; and Mechanical department, $6.45	164	11 90
	Kilbourne, Jones & Co	Hardware, Prof. Mendenhall's house	165	1 25
24	W. H. Scott	Salary Jan'y, '85, installment	166	275 00
	Edward Orton	" "	167	225 00
	S. A. Norton	" "	168	225 00
	N. S. Townshend	" "	169	225 00
	R. W. McFarland	" "	170	225 00
	E. H. Mark	to Feb'y 1, 1885	171	75 00
	S. W. Robinson	Jan'y, '85, installment	172	225 00
	S. C. Derby	" "	173	225 00
	N. W. Lord	" "	174	100 00
	J. R. Smith	" "	175	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Jan'y 24	W. R. Lazenby	Salary Jan'y, '85, installment	176	$225 00
	H A. Weber	" "	177	200 00
	A. P. Blocksom	" "	178	50 00
	C. U. Weld	" "	179	120 00
	Alice Williams	" "	180	90 00
	Alexis Cope	to Feb. 1, '85	181	100 00
30	F. W. Prentiss	" "	182	33 33
24	Emma Lehner	Jan'y, '85, installment	183	12 50
	M. N. Mix	" "	184	12 50
	David O'Brien	" "	185	70 00
	Geo. W. McCoard	" "	186	100 00
	C. N. Brown	" "	187	100 00
	J. C Randall	" "	188	100 00
	H. H. Parry	to Feb. 1, '85	189	100 00
Feb'y 7	Thos. A. Cowgill	Trustee expenses	190	10 60
10	F. E. Bruce	Telephone trumpet	191	5 00
	James Kelly	Salary to Feb. 1, '85	192	35 00
	Col. Brass & St. Pipe W'ks	Steam cocks, air cocks, etc.	193	3 57
	Kershaw & Krauss	Moquette rug for president	194	3 40
	H. A. Weber	Expenses att'g farmers' inst.	195	8 60
	Ohio State Journal	Printing 4 M comp'y cards	196	3 00
	Glock & Talmadge	Supplies for Physical dep't	197	9 65
	Rockey & Link	Repairing cistern, dormitory	198	12 00
	Mrs. S. A. Glenn	5 M examination papers	199	18 50
	Capital City Machine W'ks	1 emery dresser, Mech. dep't	200	3 50
	Siebert & Lilley	7 M envelopes	201	81 00
	Lantern Publishing Co	Advertising university	202	18 00
	C. Eldridge & Son	Soap and matches	203	13 20
19	C. A. Roth	Salary to Feb. 19, '85	204	40 00
20	A. H. Tuttle	Salary Feb'y, '85, installment	205	225 00
	Edward Orton	" "	207	225 00
	W. H. Scott	" "	206	275 00
	Sidney A. Norton	" "	208	225 00
	N. S. Townshend	" "	209	225 00
	R. W. McFarland	" "	210	225 00
	S. W. Robinson	" "	211	225 00
	S. C. Derby	" "	212	225 00
	J. R. Smith	" "	213	225 00
	W. R. Lazenby	" "	214	225 00
	H. A. Weber	" "	215	200 00
	N. W. Lord	" "	216	100 00
	A. P. Blocksom	" "	217	50 00
	C. U. Weld	" "	218	120 00
	Alice Williams	" "	219	90 00
	Alexis Cope	to March 1, '85	220	100 00
	Emma Lehner	Feb'y, '85, installment	221	12 50
	M. N. Mix	" "	222	12 50
	David O'Brien	" "	223	70 00
	Geo. W. McCoard	" "	224	100 00
	C. N. Brown	" "	225	100 00
	J. E. Randall	" "	226	100 00
	E. H. Mark	to March 1, '85	227	75 00
	H. H. Parry	" " ins'm't	228	100 00
March 3	F. W. Prentiss	" " "	229	83 33
4	George H. Twiss	Books for library	230	159 56
	same	Supplies, Physical dep't	231	10 62
	A. H. Smythe	Books for library	232	210 18
	A. H. Tuttle	Supplies, Phys'l dep't, $33.56; att'ng farmers' inst., $10.60	233	44 16

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885. March 4	Stitt, Price & Co	Lime and drayage	234	$2 25
	Aston & Huff	Supplies, Physical dep't	235	19 75
	Capital City Machine W'ks	Supplies, Mech'l dep't	236	15 88
	J. W. Wilson	13 cords of wood	237	26 00
	S. P. Watt	Salary Mar., '85, installment	238	10 00
	Royce & Pulling	Supplies and repairs	239	4 90
	Charles H. Taylor	Supplies, Physical dep't	240	10 00
	Henry A. Ward	3 pigeons' skeletons, Physical department	241	24 00
	Noble Patterson	Repairing brick work, boiler No. 1	242	1 50
	Theo. H. Schneider	Rent piano to Feb. 1, '85	243	25 00
	Col. Brass & St. Pipe W'ks	Supplies—sundries	244	28 69
	Kilbourne, Jones & Co	Supplies, Chemical dep't	245	8 08
	W. R. Lazenby	Expense attn'g farmers' inst	246	29 35
	R. A. Rogers & Co	7600 sheets paper	247	2 66
	Col. Transfer Co	Frt. on package, university	248	1 48
	Central U. Telephone Co	Rent of time signal line one year, to Feb. 15, '86	249	25 00
	Col. & Hocking Coal & I. Co	On acct. of coal delivered	250	413 96
	W. H. Scott	Expenses att'g farmers' inst.	251	13 35
	J. W. Queen & Co	Supplies	252	166 25
	Henry A. Weber	Expenses att'g farmers' inst.	253	8 45
	J. E. Randall	Supplies, Physical dep't	254	6 50
	Ohio State Journal Co	4500 compliment cards	255	5 40
	James Kelly	Salary to March 1, '85	256	35 00
	Cora Needles	Browning literary society appropriation	257	15 00
	M. S. Rockey	Repairing pump	258	2 00
	F. & M. Keper	Supplies, Physical dep't	259	15 00
20	W. H. Scott	Salary Mar., '85, installment	260	275 00
	Edward Orton	" "	261	225 00
	S. A. Norton	" "	262	225 00
	N. S. Townsend	" "	263	225 00
	R. W. McFarland	" "	264	225 00
	A. H. Tuttle	" "	265	225 00
	S. W. Robinson	" "	266	225 00
	N. W. Lord	" "	267	100 00
	S. C. Derby	" "	268	225 00
	J. R. Smith	" "	269	225 00
	W. R. Lazenby	" "	270	225 00
	H. A. Weber	" "	271	200 00
	A. P. Blocksom	" "	272	50 00
	C. U. Weld	" "	273	120 00
	Alice Williams	" "	274	90 00
	Alexis Cope	to April 1, '85	275	100 00
	Emma Lehner	Mar., '85, installment	276	12 50
	M. N. Mix	" "	277	12 50
	David O'Brien	" "	278	70 00
	Geo. W. McCoard	" "	279	100 00
	C. N. Brown	" "	280	100 00
	J. E. Randall	" "	281	100 00
	E. H. Mark	to April 1, '85	282	75 00
	H. H. Parry	" "	283	100 00
	S. P. Watt	Mar., '85, installment	284	10 00
	C. A. Roth	to April 19, '85	285	40 00
21	Edward Orton	Books, etc., for library	286	7 80
April 2	F. W. Prentiss	Salary to April 1, '85	287	33 33
	L. B. Wing	Expense trustee	288	31 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
April 8	R. E. DeButts	Repairing locks, main build'g	289	$2 00
	Central Ohio Paper Co	100 M examination sheets	290	35 00
	Cen. Union Telephone Co.	Rent, 2 instruments, July 1, 1885	291	25 00
	C. Eldridge & Son	Mops, sacks, etc	292	6 25
	Kauffman, Latimer & Co	Bal. acc. supplies Chem. dep't	293	15 04
	Col. & H. Coal & Iron Co	On account coal delivered	294	480 04
	Geo. Rhoades	1¾ days' labor, $2.50, helper ¾ day	295	3 50
	Warmbrun, Quilitz & Co	Supplies Chem. dep't 1,048¾ marks, @ 24c	296	251 52
	Theodore Schuchardt	Supplies Chem. dep't 827¼ marks, @ 24c	297	198 48
	Augustus P. Blocksom	Repairs band instruments	298	28 25
	Jas. Kelly	Wages as lawn keeper to April 1, 1885	299	35 00
	W. I. Squiers	1 copy People's Cyclopedia, library	300	14 00
	Ohio Penitentiary	2 dozen brooms and 1 dozen brushes	301	13 50
	A. A. Graham	1 year's subs. "Magazine West." History	302	3 20
	P. E. Fleck & Co	Premium on insurance	303	45 00
	Columbus post-office	Postage stamps for president	304	23 00
	Col. B. & Steam Pipe Wks.	2 crucibles and pipe fitting	305	2 24
	same	Material and repairs boilers	306	13 85
	Stitt, Price & Co	4 m. lime and drayage	307	4 50
	Edward Orton	Supplies, etc., Geolog. dep't	308	32 40
	N. S. Townshend	Expense attending Farmers' Institutes	309	42 70
	same	Exp. farmers' lecture course.	310	43 85
	Andrew Schwartz	Plumbing and supplies main building	311	144 39
	Columbus Transfer Co	Frt. on supplies chem. dep't	312	36 25
	Kelley & Co	Plumbing at Prof. Tuttle's	313	14 40
17	A. H. Tuttle	Salary April, '85, installment	314	225 00
18	W. H. Scott	" "	315	275 00
	Edward Orton	" "	316	225 00
	Sidney A. Norton	" "	317	225 00
	N. S. Townshend	" "	318	225 00
	R. W. McFarland	" "	319	225 00
	S. W. Robinson	" "	320	225 00
	N. W. Lord	" "	321	100 00
	Samuel C. Derby	" "	322	225 00
	Josiah R. Smith	" "	323	225 00
	W. R. Lazenby	" "	324	225 00
	Henry A. Weber	" "	325	200 00
	A. P. Blocksom	" "	326	50 00
	C. U. Weld	" "	327	120 00
	Alice Williams	" "	328	90 00
	Alexis Cope	to May 1, 1885	329	100 00
	Emma Lehner	April, '85, installment	330	12 50
	M. N. Mix	" "	331	12 50
	David O'Brien	" "	332	70 00
	Geo. W. McCoard	" "	333	100 00
	C. N. Brown	" "	334	100 00
	J. E. Randall	" "	335	100 00
	H. H. Parry	to May 1, 1885	336	100 00
	E. H. Mark	" "	337	75 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
April 18	S. P. Watt	Salary April, '85, installment	338	$10 00
	C. A. Roth	to May 1, 1885	339	66 00
May 1	F. W. Prentiss	" "	340	33 33
5	S. H. Ellis	Expense trustee, 1885	341	13 50
7	J. B. Jamison	" "	342	15 00
	Thos. J. Godfrey	" "	343	7 50
	L. B. Wing	" "	344	8 50
	Thos. A. Cowgill	" "	345	20 70
	Jas. Kelly	Salary to May 1, 1885	346	35 00
9	H. T. Stephens	66 hours' work in Phy. and Zool. dep't	348	9 90
	A. H. Tuttle	Supplies Physiol. dep't	347	9 61
	J. M. Stutz	Repair'g cistern of gasometer	349	30 00
	McDonalds & Steube	6 6 gallon jars, etc., supplies Physiol. dep't	350	3 61
	H. P. Smith	Assistance in Physiol. dept.	351	15 00
	Geo. H. Twiss	Books for library	352	62 42
	Col. B. & Steam Pipe Wks.	Supplies Mech. dep't	353	7 50
	R. W. McFarland	Pay-roll for laborers on lawn.	354	28 98
	A. H. Smythe	Stationery, $221, books for library	355	358 73
	Geo. H. Twiss	Stationery	356	8 75
	Wassall Fire-clay Co	Fire-clay and bricks repairing boilers	357	6 25
	Blackwood, Green & Co	3 iron buckets, etc., etc	358	6 00
	Theodore Schuchardt	Balance on bill approved April 8, 1885	359	7 50
	Carl Schoenhof	Books for library	360	33 57
	R. O. Smith & Co	Lumber for university	361	45 68
	S. P. Watt	Lock and keys drawing-room, and 1 truck	362	6 50
	West. Union Telegraph Co	Message	363	25
	Henderson & Olds	Casting for Mech. dep't	364	2 28
	Jno. Minton	1 load sand	365	2 50
	P. Hayden & Sons	1 ton Bloss'g coal Mech. dep't	366	4 00
	Solon Hyde	15 gallons coal oil	367	2 25
	Geo. M. Maris & Co	2 Yale locks and bolts	368	4 30
	Hann & Adair	Blanks for approved accou'ts	369	2 63
	Kauffman, Latimer & Co.	343 lbs. blue vitriol Phys. dep't	370	18 62
	E. L. P. Schaub	16 grates for gas purifier	371	6 75
	Siebert & Lilley	Blank books for secretary and treasurer	372	23 75
	J. & H. Berge	Supplies for Chem. dept	373	21 18
	J. M. Stuart	2 carriages for trustees	374	4 00
	Columbus Transfer Co	Frt. on supplies Chem. dep't	375	30 46
	Columbus Nursery	Trees for campus	376	32 00
	Wm. Taylor	Cement, etc., repairing gasometer	377	10 75
	J. D. Riggs	Labor and repairs Mech. department	378	12 05
	Clara G. Orton	Teaching during Lieutenant Blocksom's absence	379	10 00
	H. T. Stephens	Care and equipment, etc., military stores	380	8 00
	Samuel Kendrick	Balance due discovering Virginia Military Lands	381	96 73
12	Columbus Water-works	Water rents from Nov. 1, 1884, to May 1, 1885	382	114 92

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885. May 13	Jno. Joyce, clerk court	Costs, Wm. Calvin vs. Board of Trustees	383	$11 20
23	W. H. Scott	Salary May, 1885, installment	384	275 00
	Edward Orton	" "	385	225 00
	Sidney A. Norton	" "	386	225 00
	N. S. Townshend	" "	387	225 00
	R. W. McFarland	" "	388	225 00
	A. H. Tuttle	" "	389	225 00
	S. W. Robinson	" "	390	225 00
	N. W. Lord	" "	391	100 00
	Samuel C. Derby	" "	392	225 00
	J. R. Smith	" "	393	225 00
	W. R. Lazenby	" "	394	225 00
	Henry A. Weber	" "	395	200 00
	A. P. Blocksom	" "	396	50 00
	C. U. Weld	" "	397	120 00
	Alice Williams	" "	398	90 00
	Alexis Cope	to June 1, 1885	399	100 00
	Emma Lehner	May, 85, installment	400	12 50
	M. N. Mix	" "	401	12 50
	David O'Brien	" "	402	70 00
	Geo. W. McCoard	" "	403	100 00
	C. N. Brown	" "	404	100 00
	J. E. Randall	" "	405	100 00
	H. H. Parry	to June 1, 1885	406	100 00
	E. H. Mark	Salary to June 1, 1885	407	75 00
	S. P. Watt	" May, '85, installment	408	10 00
21	C. A. Roth	" to June 1, 1885	409	50 00
June 1	F. W. Prentiss	" "	410	33 33
2	Thos. A. Cowgill	Exp. attending meeting Ex. Com'e	411	7 50
4	Jas. Kelley	Salary to June 1, 1885	412	85 00
5	Samuel C. Derby	Cash paid for books and repairs	413	27 61
	Geo. H. Twiss	Books for library	414	59 54
	Col. & H. Coal & Iron Co.	For coal delivered	415	86 17
	Nitschke Bros	Print'g, $3.00; envelopes $3.25	416	6 25
	Col. Brass & Steam P. Wks.	Vise, $14; fittings, $4.91	417	18 91
	Williams & Co	Col. Directory for Prest. office	418	3 00
	W. H. Scott	Cash paid for advertising	419	17 00
	J. & H. Buge	Supplies Mining department	420	18 88
	Gazette Printing Co	Printing 100 newspaper slips	421	1 00
	Geo. H. Twiss	Sets of parallel bars for ladies' gymnasium	422	13 50
	Glock & Talmadge	12 prs. dumb-bells for ladies' gymnasium	423	6 00
	J. D. Riggs	Supplies for Phys. dep't, etc.	424	4 65
	Strobridge Lith. Co	18 diplomas	425	18 00
	American Express Co	Freight on pkgs. of reports	426	1 65
	P. E. Fleck & Co	Premiums on insurance dormitory	427	36 00
	A. H. Smythe	Stationery	428	8 40
	Col. Brass & Steam P. Wks.	Fittings Mining department	429	2 88
	Geo. H. Twiss	Electric bells and wires	430	8 20
	Stitt, Price & Co	2 bbls. lime for gas	431	1 75
24	Thos. J. Godfrey	Exp. Trustee, June meeting	432	35 00
	Seth H. Ellis	" "	433	20 00
	Jas. B. Jamison	" "	434	22 60

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885. June 24	Peter H. Clark	Exp. Trustee, January and June meeting	435	$43 75
	Thos. A. Cowgill	Exp. Trustee, June meeting	436	12 85
	C. A. Barton	Salary from June to Nov., '84	437	100 00
	"	Expenses agent for Virginia Military lands	438	91 75
25	H. P. Smith	Services as ass't to Professor Tuttle, etc	439	18 25
	C. C. Greene	Services as ass't to Professor Tuttle, etc	440	30 00
	W. H. Hannum	Advertising in "Makio"	441	15 00
27	R. W. McFarland	Salary as Bursar, etc	442	113 70
	Lantern Publishing Co	Advertising university	443	50 00
29	A. H. Smythe	Books for library	444	47 93
	Siebert & Lilley	Binding 1 vol. for library	445	1 25
	S. A. Norton	Books for library	446	140 50
	Carl. Schoenhof	" "	447	2 13
	Col. Brass & Steam P. Wks.	Supplies Mech'l department	448	4 86
	M. T. Gleason	" "	449	7 20
	Henderson & Olds	" "	450	3 25
	J. D. Riggs	Cleaning machinery Mech'l department	451	4 00
	S. W. Robinson	Labor and supplies Mech'l department	452	13 88
	Nitschke Bros	Envelopes, circulars, etc	453	7 63
	Columbus post-office	Postage on circulars	454	56 00
	Col. & H. Coal & Iron Co.	On account of coal delivered	455	9 53
	Columbus Transfer Co	Freight on supplies Mining department	456	1 50
	Kiffer & McDonald	Supplies Chemical dep't	457	75 00
	E. B. Armstrong	" "	458	2 25
	Krauss & Dobbie	" "	459	14 28
	Bowe & Beggs	5 door mats, main building	460	15 65
	Edward Orton	Supplies Geological dep't	461	23 60
	Derers & Ryan	Professional services Board of Trustees vs. E. Simpson	462	25 00
	H. T. Stephens	Care of arms, etc., spring term, 1885	463	8 00
July 9	Adams Express Co	Freight on reports	464	1 15
8	L. B. Wing	Expense Trustees	465	15 75
9	Sidney A. Norton	Supplies Chemical dep't	466	21 35
	Henry A. Weber	Labor of men at commencement	467	13 40
	Alexis Cope	Rubber stamp for Ex. Com'e	468	1 50
	Cen. Union Telegraph Co.	Rent of instruments, etc., to October 1, 1885	469	25 25
	Col. Brass & Steam P. Wks	Supplies for Chemical dep't	470	2 00
	Hann & Adair	Advertising for university	471	4 50
	W. H. Rhoads	Supplies for Mech'l dep't	472	1 60
	R. O. Smith & Co	Lumber for platform	473	4 11
	Barracks band	Music at commencement	474	25 00
	U. S. Express Co	Freight on package	475	30
	Edward Orton	Expense Dr. Gregory commencement	476	35 00
	Western Union Tel. Co	Telegrams—12	477	5 79
	Chas. F. Scott	Ass't in Phys'l department	478	40 00
	J. M. Stuart	Carriages during commencement	479	16 00
	Abbott, Horn & Co	Hardware, etc	480	12 46

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
July 9	A. H. Smythe	Sundries, etc	481	$18 40
18	Geo. W. Early	One piano	482	485 00
	Columbus post-office	Postage stamps	483	20 00
25	Alexis Cope	Rubber bands	484	1 00
	Geo. H. Twiss	Supplies ladies' gymnasium	485	30 47
	Columbus Dispatch	Advertising coal contract	486	6 00
Aug. 11	Col. Oderless V. & S. C. Co.	Cleaning vaults university	487	72 00
	T. H. Schneider	Bal. due for rent piano	488	22 50
	Westbote Company	Advertising coal contract	489	4 50
	Col. Brass & Steam P. Wks.	6 overflow plugs	490	4 50
	A. W. Jackson & Son	Books, etc. library	491	90 15
	A. H. Smythe	" "	492	154 47
12	W. R. Lazenby	Balance due on salary Sep't and October, 1884	493	50 00
24	Daily and Weekly Times	Advertising coal contract	494	6 00
Sept. 3	Peter H. Clarke	Expense trustee	495	11 75
	Thos. A. Cowgill	"	496	22 60
4	Thos. J. Godfrey	"	497	16 85
	S. H. Ellis	"	498	17 35
5	Jno. M. Stutz	Groating cellars, etc	499	146 88
	H. A. Weber, Farm Man'gr	Hauling wood to Chem. dep't	500	15 10
7	Gazette Printing Co	Paper, printing, etc	501	343 50
8	S. B. Pinkerton	Advert'ng in Lucas Co	502	6 00
	C. J. Albert	" Montgomery Co.	503	5 90
	Mansfield Daily News	" Richland Co	504	1 35
	Newton Stillwell	" Holmes Co	505	6 00
	Harry Ball	" Scioto Co	506	6 00
	J. L. Patterson	" Morgan Co	507	6 00
	B. F. Klinger	" Mercer Co	508	6 14
	J. C. Culbertson	" Cincinnati, O.	509	6 00
	Peter H. Clark	" "	510	3 50
	W. H. Rayl	" Erie Co	511	6 00
	A. A. Clark	" Belmont Co	512	6 24
	Enquirer Company	" Cincinnati, O.	513	24 00
	Columbus post-office	Postage for advertising university	514	172 80
	Western Union Tel. Co.	Telegrams	515	8 75
	Braun & Bruck	4 lbs. mur. ammonia	516	1 00
	A. H. Smythe	Hektograph, etc	517	6 18
	Chas. C. Gerry	Crayon erasers, 2 doz.	518	2 00
	Geo. M. Maris & Co	Sundry supplies	519	17 09
	Jno. Patterson	Bal. on exchange mowers	520	45 00
	Siebert & Lilley	Blank receipt book	521	22 50
	Adams Express Co	Expressage	522	8 85
	U. S. Express Co	Expressage	523	55
	A. H. Smythe	Books for library	524	18 16
	Geo. H. Twiss	" "	525	9 61
11	The Halm & Bellows Furniture Co	Furniture and repairs	526	117 25
12	J. B. O'Reilly	Advertis'g in State Fair Adv	527	12 00
	Harvey H. Parry	Rent from Nov. 15, 1884, to Nov. 15, 1885	528	150 00
14	American Express Co	Freight on reports, etc	529	1 20
	Siebert & Lilley	Print'g & ruling 600 records	530	10 00
	S. P. Watt	Photos of buildings for display at State Fair	531	6 25
	Ohio State Journal Co	Signs for advert'g university	532	2 75
	E. M. P. Brister	Advertising in Licking Co	533	5 00
30	N. S. Townshend	Salary Sept., '85, installment	534	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Sept. 30	S. W. Robinson	Salary Sept., '85, installment	535	$225 00
26	N. W. Lord	“ “ “	536	100 00
30	J. R. Smith	“ “ “	537	225 00
	H. A. Weber	“ “ “	538	200 00
	A. P. Blocksom	“ “ “	539	50 00
	C. N. Brown	“ “ “	540	120 00
	Alice K. Williams	“ “ “	541	100 00
	George W. McCoard	“ “ “	542	120 00
	Jos. N. Bradford	“ “ “	543	100 00
	A. H. Welsh	“ “ “	544	120 00
	H. J. Detmers	“ “ “	545	100 00
	Horace P. Smith	“ “ “	546	15 00
	Alexis Cope	“ to Oct. 1, '85	547	100 00
	F. W. Prentiss	“ “ “	548	33 33
	Emma C. Lehner	“ Sept., '85, installment	549	12 50
	Vernon J. Emery	“ “ “	550	12 50
	J. E. Randall	“ “ “	551	80 00
Oct. 9	W. T. Morry	Labeling and marking books.	552	12 07
	Col. Warm Air Furnace Co	Furnaces for new residences	553	692 15
	Clara Fisher	Work on library catalogue...	554	4 73
	A. D. Rodgers	No. 94 Flora Brazilicuis for library	555	18 65
	Samuel C. Derby	Frt. and drayage for library	556	1 45
	A. H. Smythe	“ “	557	6 95
	The Com. Gazette Co	Advertising university	558	25 00
	Charles F. Scott	“ “	559	38 00
	Planter and Stockman	“ “	560	3 75
	A. C. Denel	“ “	561	5 00
	Mast, Crowell & Kirtp'trick	“ “	562	42 00
	Col. Garb. & Scavenger Co	Cleaning cesspool at Knight residence	563	30 00
	George M. Maris & Co	Yale locks, key, bolt, etc	564	9 70
	Krauss & Dobbie	Carpets and blinds	565	71 94
	George M. Maris	One feather duster, etc	566	2 00
	Wm. Taylor	One dozen brooms	567	2 75
	Col. Transfer Co	Frt. and drayage for library	568	1 30
	L. Westfall	Attendance at university during State Fair	569	2 25
	Halm & Bellows Furn. Co	Chairs and bulletin board...	570	98 00
	Stitt, Price & Co	Lime for gas	571	1 25
	Hann & Adair	8 placards for furnaces	572	1 15
	W. N. Elliott	Attendance during State Fair	573	7 75
	Central U. Telephone Co.	Rent of instr'ts to Jan. 1, '86	574	25 00
	W. U. Telegraph Co	Messages	575	50
	R. Jones & Co	Supplies for Physiol. dept...	576	17 50
26	W. H. Scott	Salary Oct., '85, installment	577	300 00
	Edward Orton	“ “	578	225 00
	Sidney A. Norton	“ “	579	225 00
	N. S. Townshend	“ “	580	225 00
	A. H. Tuttle	“ “	581	225 00
	S. W. Robinson	“ “	582	225 00
	N. W. Lord	“ “	583	100 00
	Samuel C. Derby	“ “	584	225 00
	W. R. Lazenby	“ “	585	225 00
	J. R. Smith	“ “	586	225 00
	H. A. Weber	“ “	587	200 00
	Benj. F. Thomas	“ “	588	225 00
	George C. Comstock	“ “	589	200 00
	George W. Knight	“ “	590	200 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Oct. 26	A. P. Blocksom	Salary Oct., '85, installment	591	$50 00
	C. N. Brown	" "	592	120 00
	Alice K. Williams	" "	593	100 00
	David O'Brien	" "	594	90 00
	George McCoard	" "	595	120 00
	J. E. Randall	" "	596	80 00
	Jos. N. Bradford	" "	597	100 00
	A. H. Welsh	" "	598	120 00
	H. J. Detmers	" "	599	100 00
	Horace P. Smith	" "	600	15 00
	Vernon J. Emery	" "	601	12 50
	Emma C. Lehner	" "	602	12 50
	Alexis Cope	Salary to Nov. 1, '85	603	100 00
	F. W. Prentiss	" "	604	33 33
31	L. B. Wing	Trustee expenses	605	17 00
28	Col. Transfer Co	Freight on box machinery	606	2 40
	Green, Joyce & Co	School crayons	607	9 04
	A. W. Jackson & Son	Binding entrance records	608	4 00
	Siebert & Lilley	Binding No. 2 order and warrant books	609	23 50
	Richmond & Backus Co	12 class registers	610	4 32
	Stitt, Price & Co	30 m of lime	611	3 00
	D. W. Groff	Freight on packages	612	75
	Nitschke Bros	Printing programmes, etc	613	28 25
	McCune, Lonnis & Griswold	Hardware for university	614	9 15
	W. B. Viets	1½ days' labor, remov'g racks	615	3 00
	Frank A. Ray	1½ days making door for engine house	616	3 37
	J. M. Stuart	Carriages for board of trustees	617	10 00
	Edwin Alden & Bro	Advertising university	618	257 62
	Ohio Farmer	" "	619	32 00
	T. B. Pinkerton	Bal. acct. holding and advertising examina's in Lucas Co	620	1 72
	R. O. Smith & Co	Lumber for boxing pipes, etc	621	16 70
	same	Labor and material for Horticultural building	622	13 00
	George M. Maris & Co	Hardware for university	623	14 20
Nov. 11	Jas. B. Jamison	Expense, trustee	624	16 60
	Seth H. Ellis	" "	625	14 60
	Thos. J. Godfrey	" "	626	19 45
	Thos. A. Cowgill	" "	627	30 45
	Peter H. Clark	" "	228	15 00
	L. B. Wing	" "	629	9 00
	Total disbursement			$44,776 99
	Balance, being cash in	my hands this day		1,417 52
				$46,194 51

STATEMENT VI.

APPROPRIATIONS.

Department of Physics	$60 00
“ Physiology	60 00
“ History	50 00
“ Latin and Greek	40 00
“ Veterinary Surgery	150 00
Young Ladies' Gymnasium	50 00
Advertising	100 00
Expenses attending Farmers' Institutes	100 00

LIST OF EMPLOYES AND COMPENSATION.

In compliance with section 7 of the organic act, passed by the Legislature of Ohio, May 1, 1878, which requires a list of "the number of Professors, officers, teachers and other employes, and the position and compensation of each, to be reported annually," I submit the following list:

William H. Scott, President	$3,000 00
Edward Orton, Professor	2,250 00
Sidney A. Norton, Professor	2,250 00
Norton S. Townshend, Professor	2,250 00
Albert H. Tuttle, “	2,250 00
Stillman W. Robinson, “	2,250 00
Nathaniel W. Lord, “	1,000 00
Samuel C. Derby, “	2,250 00
William R. Lazenby, “	2,250 00
Josiah R. Smith, “	2,250 00
Henry A. Weber, “	2,000 00
Benjamin F. Thomas, “	2,250 00
George C. Comstock, “	2,000 00
George W. Knight, “	2,000 00
Augustus P. Blocksom, “	500 00
C. Newton Brown, Assistant Professor	1,200 00
Alice K. Williams, Instructor	1,000 00
George B. Kauffman, Lecturer	....
David O'Brien, Assistant Professor	900 00
Geo. W. McCoard, “	1,200 00
J. E. Randall, “	800 00
Joseph N. Bradford, “	1,000 00
Albert H. Welsh, “	1,200 00
Horace P. Smith, “	150 00
Alexis Cope, Secretary	1,200 00
Frederick W. Prentiss, Treasurer	400 00
Emma C. Lehner, Assistant Librarian	125 00
Vernon J. Emery, Clerk to President	125 00
H. H. Parry, Janitor	1,200 00
Chas. A. Roth, Florist	600 00

REPORT OF THE FINANCE COMMITTEE.

Columbus, Ohio, *November* 15, 1885.

To the Board of Trustees of the Ohio State University:

The undersigned, committee on finance, have examined the accounts and vouchers of the treasurer, and compared them with the records and vouchers in possession of the secretary, and we hereby certify that the report of the treasurer is correct.

Peter H. Clark,
Jas B. Jamison,
T. J. Godfrey.

'BY-LAWS AND RULES AND REGULATIONS

OF THE

BOARD OF TRUSTEES OF THE OHIO STATE UNIVERSITY.

[As revised and amended November 10, 1885.]

ORGANIZATION AND MEETINGS.

SECTION 1 The officers of this board shall consist of a president, vice-president, secretary, and treasurer, who shall be chosen by ballot at the first meeting of the board, and at each annual November meeting thereafter, and shall hold their offices until their successors are elected and qualified.

SEC. 2. There shall be three meetings of the board each year. One meeting shall be held on the second Tuesday of November of each year, at the city of Columbus, at 9 o'clock A.M.; another meeting shall be held at the university on Tuesday of the week of the annual examination and commencement; and the third meeting shall be held at Columbus at such time as may be agreed upon the board.

OF THE RIGHTS AND DUTIES OF THE PRESIDENT.

SEC. 3. The president shall take his place precisely at the time provided for at the preceding meeting, and shall immediately call the board to order.

SEC 4 He shall have the right to call upon any member to perform the duties of the chair, but such substitution shall not extend beyond an adjournment.

SEC. 5. He shall preserve order and decorum in the proceedings of the board, and shall observe and impartially administer that system of rules and regulations known as "parliamentary law," so far as the same may be applicable to the proceedings of this board.

SEC 6. All committees shall be appointed by the president, unless otherwise ordered by resolution of the board.

SEC 7. He shall sign the journal of all proceedings of the board, had at each meeting; and all appointments made by the board shall be signed by him, attested by the secretary, who shall affix to every such appointment the corporate seal.

SEC. 8. The president is authorized to call special meetings of the board; and it is hereby made his duty to do so, upon request of a majority of the executive committee, or whenever in his judgment the same should be convened, by causing all the members to be notified a reasonable time before any such meeting. In the absence of the president the vice-president shall perform all the duties of the president.

EXECUTIVE COMMITTEE.

SEC. 9. The executive committee shall consist of three members, who shall be chosen by ballot at the November meeting; who, when the board is not in session, shall have the management and control of the affairs of the university, under direction of the board, which committee shall furnish to the board, at every regular meeting thereof, or oftener if required by the board, a full report of their proceedings in the management and control of the university.

SEC. 10. The executive committee shall not create any liability not duly authorized by the board, nor contract any debts beyond the appropriation made by the board; but the order of the chairman of said committee, or the resident trustee designated by them, shall be sufficient warrant for the secretary to issue his draft on the treasurer for the payment of such orders as may be approved by said committee.

FARM COMMITTEE.

SEC. 11. There shall be elected, by ballot, at the November meeting of the board, a committee of three members, to have the supervision and direction of the management of the university farm, and of experiments made thereon, subject to the direction of the board.

SEC. 12. The farm committee are prohibited and restrained, in like manner as the executive committee, in regard to liabilities and debts, but are authorized to expend any and all appropriations made by the board for the use of the farm, and to conduct experiments on the same; and an accurate account of such experiments, their cost and results, shall be prepared and presented to the board in time for publication in the annual report

SEC. 13. The secretary shall recognize the orders or requisitions made upon him by the farm committee, and shall issue his draft, in payment of the same, on the proper appropriation.

COMMITTEE ON FINANCE

SEC. 14. There shall be elected, by ballot, at the November meeting of the board, a committee on finance, to consist of three members, who shall have charge of, and report upon, such matters as the board may from time to time refer to them; and who shall recommend to the board for adoption such measures as, in their judgment, will best promote the pecuniary interests of the university.

SEC. 15. It shall be the duty of the finance committee, at the November meeting, to examine all vouchers held by the treasurer, and to make a comparison of his books with those of the secretary, and report the results of such examination and comparison to the board at the same meeting.

DUTIES OF THE SECRETARY.

SEC. 16. The secretary shall be the custodian of the books, papers, and seal, and he shall, in all proper cases, authenticate the acts of the board by affixing said seal; he shall also conduct the board's official correspondence.

SEC. 17. He shall attend all meetings of the board, keep a correct journal, entering all motions, resolutions, orders, and all other proceedings, he shall superintend all purchases authorized by the board, the executive committee and the farm committee, supervise all improvements and repairs of buildings, attend all meetings of the executive and farm committees, and keep a record of the proceedings of the same, keep an accurate account of all sales of Virginia military lands, receive all moneys arising from such sales, and certify the same into the treasury, receive all rents and term fees, and certify the same into the treasury, keep at his own expense an office at some convenient point where the board and different committees may meet for the transaction of business, and perform such other duties as the board may, from time to time, prescribe.

SEC. 18. It shall be the duty of the secretary to prepare the annual report of this board, and submit it for adoption or revision at the November meeting.

DUTIES OF THE TREASURER.

SEC. 19. The treasurer shall keep an accurate account of all moneys received and disbursed by him, and at the end of every quarter he shall furnish the executive committee, if directed, and at each November meeting to the president of the board, a detailed statement of all moneys received and expended by him; and he shall give bond, payable to the state of Ohio for the use of the Ohio state university, in the sum of forty thousand dollars ($40,000), for the safe-keeping of said funds and the payment of the same in obedience to the rules and regulations of the board, and for the faithful performance of his duties as said treasurer.

MODE OF ACCOUNTING.

SEC. 20. Before any money shall be paid into the treasury, or any requisition be made upon the auditor of state in favor of the treasurer (as provided in act of the legislature passed March 22, 1870), the secretary shall enter a correct account of the same in a book to be kept for the purpose, and certify all such money to the treasurer; and the treasurer shall not receive any money except upon such certificate or requisition; and all such certificates and requisitions shall be numbered in the order in which they shall be issued, in duplicate, the receipts of one of which shall be acknowledged upon its face by the treasurer and preserved by the secretary in book form, and the other given to the treasurer.

SEC. 21. No money shall be paid by the treasurer except in pursuance of appropriations made by the board of trustees, and as otherwise provided in section 23 of the by-laws.

SEC. 22. Every draft upon the treasurer shall be drawn by the secretary and numbered in consecutive order, and shall be made payable to the order of the person in whose favor it is drawn, and shall specify on its face the purpose for which it is drawn; and the stub of each draft shall show the name of the payee, for what purpose it is made, and shall agree in number, date and amount with such draft; and such stubs shall be preserved by the secretary in book form.

SEC. 23. No draft shall be drawn by the secretary, save for the payment of fixed salaries, expenses of the members of the board, stationery and postage except by resolution of the board or upon the written order of the executive committee, the chairman thereof or the person duly authorized by the board.

SEC. 24. The treasurer, upon receiving any such draft, shall, upon payment thereof, cancel the same as paid bank checks are canceled, and enter in his books the number, date and amount of every such draft, and the name of the person to whom paid, and the said canceled drafts shall be carefully preserved by him as vouchers, for which he shall be credited in his settlements.

ORDER OF BUSINESS.

SEC. 25. As soon as the board is called to order, a quorum being present, the journal of the preceding day, or of the last meeting, shall be read by the secretary and, if necessary, corrected by the board.

SEC. 26. When the journal has been read and approved, as provided for in the foregoing section, the president shall state any matters of business to be acted upon, which shall be disposed of in such order as he may have it arranged, unless otherwise determined by a majority of the members present. Every motion or resolution that may be deemed necessary to be entered upon the journal shall be reduced to writing by the member offering the same, and the vote upon such motion or resolution shall be taken by yeas and nays, when such a vote is demanded by any member, and recorded with the motion or resolution.

THE FACULTY.

SEC. 27. The immediate government of the university, in all that relates to the order and discipline therein, the times of recitation, the general care of the buildings, etc., etc., is vested in the president and professors constituting the faculty, who are authorized and required to establish such rules and regulations as may conduce to the good order and proper government of the university, subject to the approval of the board of trustees.

SEC. 28. They are authorized to affix and enforce such penalties for the violation of said rules and regulations, as the nature and manner of the offense may demand, a majority of the faculty concurring therein, but their action may be reviewed and annulled by the board after an impartial hearing of the facts of the case.

SEC. 29. The faculty shall hold meetings as often as may be deemed necessary to consult and advise about the mutual management of the university, and a full and correct record of the proceedings of such meetings shall be kept, which shall at all times be open to the inspection of any member of the board.

SEC. 30. They are further empowered to make such rules and regulations, and enforce their strict observance, relating to the study of military tactics, as they deem proper; provided, that such rules and regulations do not conflict with an act of the legislature, relating to the same, passed May 1, 1878.

SEC 31. The president of the university is charged with the general oversight of all work done in the various departments already established, and hereafter to be established, and shall preside at all meetings of the faculty.

SEC. 32. All members of the faculty are required to meet their classes promptly, and a failure so to do, without a reasonable excuse rendered in writing to the president of the university will subject the delinquent to a reduction of salary proportionate to the time lost or dismissal, as may be determined by the board.

SEC. 33. Members of the faculty shall not, during term time, leave the university to engage in any other work without the express consent of the president of the faculty, or in cases of prolonged absence of the board of trustees.

SEC. 34. Each professor shall furnish to the secretary before the close of the present collegiate year, a full and complete inventory of all apparatus or equipment of any kind belonging to his respective department, and annually thereafter, a list of all additions or losses in such outfit as may have occurred; and that the same be recorded and kept by the secretary, in book form, for reference.

SEC. 35. The annual reports of the heads of departments shall be for the university year ending with commencement, and shall be handed to the president on or before the first day of October. The report of the president shall be furnished to the secretary on or before November first.

STUDENTS.

SEC. 36. Students of the university are required at all times to yield a prompt obedience to all rules adopted for their guidance by the faculty.

SEC. 37. All term-bills and fees required from students must be paid previous to and as a condition of registration.

SEC. 38. All students of the university shall be required to attend the daily general exercises in the lecture room, subject to the rules which govern attendance upon the regular class exercises.

SEC. 39. The military drill shall be compulsory upon all male students of the university excepting those physically unfitted for such drill, such as may be excused by the president of the faculty on reasonable grounds, and the regular members of the junior and senior classes.

DEGREES.

SEC. 40. Degrees *in cursu* shall be conferred by the board only upon recommendation of the faculty; but honorary degrees may be conferred, with or without the recommendation of the faculty, whenever a majority of all the members of the board of trustees deem such action just and proper.

SEC. 41. All diplomas issued to those receiving degrees from the university shall be signed by the president and secretary of the board of trustees and by the members of the faculty of the university.

MISCELLANEOUS.

SEC. 42. The following named officers of the board shall each be entitled to receive an annual compensation for his services, payable monthly, as follows: The secretary shall receive an annual salary of twelve hundred dollars ($1,200), and the treasurer shall receive an annual salary of four hundred dollars ($400.)

SEC. 43. The trustees shall each, at every meeting of the board, present to the secretary a statement in writing of the sum expended in attending such meeting, who shall receive the same, and thereupon draw upon the treasurer for the amount, which shall be paid by the treasurer upon presentation of order or draft.

SEC. 44. All recommendations, communications, and reports made to the board by any one must be presented in writing, and must be addressed to the president of the board of trustees.

SEC. 45. The annual reports of the president and other members of the faculty, so far as such reports relate to the enrollment, attendance and classification of students, and such other matters as are usually referred to in the reports of college faculties, shall be for what is known as the college year, and not for the fiscal year, as heretofore.

SEC. 46. All purchases, of whatever kind, for the university, excepting those made under special appropriations, or by direction of the executive committee, shall be made by the secretary of the board. and in case of special appropriations the party in whose behalf they are ordered, shall, whenever an account is presented for payment out of said appropriation, furnish a statement showing the balance unexpended.

SEC. 47. Salaries of members of the faculty and assistants shall be paid in tenths on the last Saturday of each month. while the university is in session, and the rents for residences occupied by professors shall be payable at the same times, and in the same manner.

SEC. 48. *These by-laws, or any one of them, may be suspended, amended, or annulled at any regular or special meeting by a majority vote of the members in attendance.*

RECORD OF PROCEEDINGS

OF THE BOARD OF TRUSTEES OF OHIO STATE UNIVERSITY.

COLUMBUS, OHIO, *November* 11, 1884.

The annual meeting of the board was held, beginning at two o'clock P. M.

Present—Messrs. Thomas J. Godfrey, J. H. Anderson, Thos. A. Cowgill, S. H. Ellis, Peter H. Clark and James B. Jamison.

The minutes of the previous meeting were read and approved.

The executive committee read a report of their proceedings since the last meeting of the board, and the same was approved.

On motion of Mr. Clark, it was ordered that eighteen dollars be appropriated for advertising in the *Lantern*.

The president of the faculty was directed to furnish F. Howald, a graduate of the class of 1868, duplicates of his diplomas which have been lost or destroyed.

President Scott presented a letter from Prof. Orton requesting permission to absent himself from the university during the spring term, stating that his present college work can be crowded into two terms of the college year. On motion of Mr. Clark, the same was referred to a committee consisting of Mr. Godfrey and President Scott, with instructions to inquire into the feasibility of employing some one to take the classes in rhetoric should the board decide to grant Prof. Orton's request.

On motion of Mr. Ellis, the members of the sophomore class were excused from military drill until the further order of the board.

Board adjourned to meet at 10 A. M. to-morrow.

The following communication from Prof. Orton was presented to the board by President Scott:

COLUMBUS, OHIO, *November* 8, 1884.

President W. H. Scott:

DEAR SIR: An urgent request is made by the management of the Ohio Commission for the New Orleans Exposition that a small portion of the geological collection in the university museum be forwarded to and exhibited in New Orleans. Guarantees are offered of its safe return, and, in addition, a large amount of material, now being collected in the state in the same lines of display, will be sent back to us. I have accepted the position of Assistant Commissioner, and am superintending the preparation of the new material. I, therefore, respectfully request the board of trustees, through you, to give me permission to use a small amount of the university collection in the way named. My son will superintend the shipment and the arrangement in New Orleans. The specimens desired are mainly the building stones and the sections of coal.

Very respectfully,

(Signed EDWARD ORTON.

And on motion of Mr. Ellis, the request was granted.

Ordered. That the sum of $226 be appropriated for current expenses of physiological laboratory.

The report of the treasurer was read and referred to the finance committee for examination and report.

Board adjourned to meet at 10 A. M. to-morrow.

NOVEMBER 12, 1884—10 O'CLOCK A. M.

The board met pursuant to adjournment.

Present, the same members as yesterday.

President Scott presented and read his report to the trustees. He also presented the reports of the other members of the faculty, and the same were read by the secretary.

On motion of Mr. Clark, the said reports were referred to the president of the faculty and the secretary of the board for revision preparatory to publication in the annual report of the trustees.

On motion of Mr. Anderson, the board took a recess to meet at the university at 2 o'clock P. M.

NOVEMBER 12, 1884—2 O'CLOCK P. M.

The trustees, after inspecting the new horticultural building, green-house, and library. resumed its session at the university. Present, all the members except Mr. Wing.

Dr. Townshend was heard on the subject of continuing the farmers' lecture course at the university. The board, after due consideration, decided to continue such course.

Prof. Norton appeared before the board and was heard in reference to establishing a course of pharmacy at the chemical department.

Board adjourned to meet at 9 A. M. to-morrow.

NOVEMBER 13, 1884—9 O'CLOCK A. M.

Board met pursuant to adjournment. Present, same members as yesterday.

The finance committee reported that they had carefully examined the report of the treasurer, and found the same to be correct.

The bill of Braun & Bruck, $18.79, for equipment agricultural chemical laboratory, and the bill of A. P. Blocksom, $16.58, for supplies for battalion were allowed, and the executive committee directed to approve them for payment.

D. J. Ryan, of the firm of Devers & Ryan, Portsmouth, Ohio, presented a claim for attorney's fees in the cases of Jerome Bleekman vs. Fenton Smith, Michal Rockwell vs. O. A. M. college et al., and Richard Wooly vs. the Board of Trustees O. S. University et al., and on motion of Mr. Clark, the sum of $175 was allowed in payment of said claim.

Ordered, That $15 be appropriated for putting in order the room occupied by the Browning Literary Society.

The secretary read the report of the board, and it was referred to a committee consisting of Messrs. Cowgill, Clark, and Anderson for revision, to report at the present meeting of the board.

Ordered, That the income of the endowment fund (so-called) for the ensuing fiscal year be and is hereby appropriated for the support and maintenance of the university.

Ordered, That the secretary be instructed to draw his warrant in favor of the treasurer, on the auditor of state for the sum of $249.12, the balance of the appropriation for ordinary repairs.

Also, a similar warrant for the sum of $126.71, the balance of the appropriation for improvement of the campus.

Also, a similar warrant for the sum of $450, the amount of the appropriation for expenses of trustees.

Also, a similar warrant for the sum of $156.14, the balance of the appropriation for dynamo and gas engine.

The president of the faculty requested permission to assign Lieut. Blocksom to duty as instructor U. S. History, which was granted.

Ordered, That one hundred dollars be appropriated for supplies for department of agriculture.

Ordered, That the salary of Prof. Henry A. Weber, $2,000, be paid by the secretary as other salaries are paid, and that the amount thereof agreed to be paid by the state agricultural experiment station, shall be paid by said station to the secretary, and by him covered into the treasury.

Ordered, That the salary of Prof. Lazenby be fixed at $2,250, and that the amount paid him by the experiment station be paid to the secretary, and by him paid into the treasury.

Ordered, That the salary of Lieut. A P. Blocksom, as assistant professor of mathematics, be fixed at $500.00.

Ordered, That Mr. S. P. Watt be employed to teach projection drawing at a salary of one hundred dollars.

Ordered, That J. E. Randall be appointed assistant in the physical department at a salary of $400.

The proposed change in the physical laboratory, necessary to prevent jar of the gas engine, was referred to the executive committee with power to act.

The bills for water meters, etc., were referred to the executive committee for adjustment and payment.

Board adjourned to meet at 9 A. M. to-morrow.

NOVEMBER 14, 1884—9 O'CLOCK A. M.

Board met pursuant to adjournment. Present, the same members as yesterday.

Ordered, That the sum of one hundred dollars be appropriated for payment of expenses of members of the faculty in attending farmers' institutes.

On motion of Mr. Clark an allowance was made to Prof. Derby of $75.00 for his services in connection with removal and cataloguing of library, payable out of library appropriation.

The fee in Prof. Weber's laboratory was fixed at $8.00.

Mr. Ellis presented the report of the farm committee, and the same was adopted by the board.

The account of Capt. Barton, as agent for the sale of Virginia military lands, was referred to the executive committee for examination and settlement.

Mr. Schneider made a proposition to sell the piano at the lecture room of the university for $325, less the sum of $77.50, the amount of rent paid and due thereon, and the same was referred to the executive committee with power to act thereon.

The application of Prof. Mathew for a position at the university as instructor in drawing, was indefinitely postponed.

The matter of repairing the instruments of the band was referred to the executive committee.

The following resolution, offered by Mr. Anderson, was adopted:

Resolved, That Prof. Townshend is hereby detailed to attend farmers' institutes in the state and deliver lectures; that he is authorized to call to his aid other professors, where, in his opinion, it is proper and necessary to do so, and to expend the money this day appropriated to defray the traveling expenses of himself and associate lecturers. It is, however, understood that Prof. Townshend is to represent the university at such institutes and to deliver the lectures when convenient for him to do so.

The making the floors in the chemical laboratory sound-proof, was referred to the executive committee.

On motion of Mr. Clark, the president of the board was directed to correspond with Senators Sherman and Pendleton in reference to having the university made a depository for public documents.

A communication from the President of the Ohio university to President Scott was read, and on motion of Mr. Clark, the same was received and filed.

The secretary read a communication from Mr. Homer Hamilton, commissioner of the New Orleans Exposition for Ohio, requesting photographs of the university buildings, and the board declined to take action thereon.

Prof. Townshend made a verbal report of his trip to Great Britain, and reported purchases made by him out of appropriation allowed at the June meeting of the board. He reported an unexpended balance in his hands of $127 90, which he was directed to turn into the treasury.

The board then proceeded to the election of officers, which resulted as follows:

President—Thomas J. Godfrey.
Vice-President—S. H. Ellis.
Secretary—Alexis Cope.

The secretary read the following communication from treasurer Henry S. Babbitt, which, on motion of Mr. Cowgill, was directed to be spread upon the minutes:

COLUMBUS, OHIO, *November* 11, 1884.

To the Board of Trustees of the Ohio State University:

GENTLEMEN: Having never been a candidate for the office of treasurer of the university, and yet having been annually elected, from the organization of the board in 1870, during a period of fourteen years, it may be surmised, by those who do not know me, that I have felt a sense of proprietorship in the office, and that my annual election was but a matter of form. It is needless to say to you that I have never presumed upon anything in this regard, except to discharge the trust so often reposed in me, with the fidelity it deserved. ·I can truly say that the consciousness of an unfaltering regard for the sacredness of the trust, by which I have been able to keep it inviolate, is, at this hour, a more precious compensation than the annual stipend, which, for so many of the earlier years, was wholly inadequate.

No one of your board was associated with the birth of the college One-third of the first board of eighteen have passed away. Only one of that large, able and practical body is at present connected with the university—the venerable Professor of Agriculture. Long may he yet live to help on the tardy development of the highest aims of the foundation idea of this school of learning. I trust, too, that we all may live to see the institution placed upon a solid basis as to revenues provided for its support. I call your attention to the figures of my report for the current year, which will show you that your fixed and reasonably reliable [income] sources of revenues, viz., from interest on the endowment fund, from incidental fees, etc., from students, and from rental of residences, will produce only about forty thousand dollars annually; that the expenditures upon the present scale can scarcely fall below forty-five or forty-six thousand dollars, and that it will be imperative soon to secure a material increase in the revenues, or endure a severe crippling of the otherwise brilliant prospects that lie before you. It would have been a pleasure to me to aid in such a consummation, but, though I feel a personal pride in the part that I have heretofore taken, as well as in the associations it has brought, I regret to say (and that is the purpose of this communication), that my domestic affairs are likely to keep me so much away from the city and state of my adoption, that I deem it my duty to you, as well as myself, to say that I cannot hereafter render the service which the office should receive, so that you will not, through a feeling of personal regard for me, hesitate to elect a treasurer who may serve you better, but not more faithfully than I have done. Thanking you for your long-continued personal esteem, your uniform courtesy and invariable adoption of such suggestions as I have seen fit to make,

I am, very respectfully yours,

(Signed) HENRY S. BABBITT.

F. W. Prentiss was thereupon duly elected treasurer of the board.

The following committees were duly elected:

Executive committee—J. H. Anderson, chairman; L. B. Wing and Thos. A. Cowgill.

Farm committee—L. B. Wing, chairman; S. H. Ellis and Jas. B. Jamison.

Finance committee—Peter H. Clark, chairman; Jas. B. Jamison and Thos. J. Godfrey.

Harvey H. Parry was employed as janitor.

On motion of Mr. Anderson, the rules were suspended and the bond of the treasurer fixed at $40,000.

On motion of Mr. Clark, the salaries of the secretary and treasurer were fixed at the same as last year. The compensation of the janitor was fixed at $1,200 per year, and he is to be allowed pasture for one cow, as per memorandum of contract.

The secretary was directed to see that the bond of the treasurer was properly executed, approved and filed with him.

On motion of Mr. Anderson, the salary of Captain Barton, as agent for the sale of the Virginia Military Lands, was discontinued.

The following resolutions, presented by Mr. Clark, were unanimously adopted:

WHEREAS, Dr. Henry S. Babbitt, the trusted treasurer of the Ohio state university from its foundation has, by resignation, severed his connection with that institution; and

WHEREAS, Dr. Babbitt, by the faithful performance of his important duties, and the wisdom of his counsels, has aided materially in guiding the university from its infancy to its present proud position among the schools of the country; therefore,

Resolved, That we part with him with regret, and assure him that he carries with him to his new home and new field of labor the entire confidence and sincere respect or the board.

Adjourned.

(Signed) T. J. GODFREY, *President.*

COLUMBUS, O., *December* 18, 1884.

Pursuant to the call of the president, the board of trustees met at their office in Columbus to consider the resignation of Prof. T. C. Mendenhall.

Present, Thos. J. Godfrey, L. B. Wing, and Thos. A. Cowgill. There being no quorum of the board present, adjourned.

(Signed) T. J. GODFREY, *President.*

COLUMBUS, O., *January* 15, 1885.

The board met at call of the president.

Present, Thos. J. Godfrey, Pres., J. H. Anderson, Lucius B. Wing, Thos. A. Cowgill, Peter H. Clark, and Jas. B. Jamison.

The minutes of the last meeting were read and approved. The report and proceedings of the executive committee were also read and approved.

The president laid before the board the resignation of Prof. Thomas C. Mendenhall, in the words and figures following, to-wit:

COLUMBUS, O., *November* 26, 1884.

MY DEAR MR. GODFREY: I presume you have heard, through President Scott, before this, of my intention to leave the university at the end of this term. I wish, however, to inform you personally, and as president of the board, of the fact, and to explain to you how I have been led to this decision. I think I need hardly say that it has cost me a hard struggle to determine to retire from active service in an institution with which I have been so long connected, and in which I have always had and always must have so deep an interest.

I have been for some years urged to connect myself with the U. S. Signal Service in Washington, in the capacity of civilian professor. As you know, I have long had a great interest in the work, and it has been urged upon me that there are certain developments of it that I could bring about better than others, and that I *ought* to consent to undertake it. After much thought and consideration of the subject, I decided, after conference with the authorities at Washington, that I would do so. This conclusion I reached just about the time of the opening of the present term. In reflecting upon the matter, I was convinced that it was better for the university that I should not retire at once, but that I should obtain permission to continue during the present term and do all I could to get the year's work fairly started. It also appeared to me best, to prevent discussion or agitation, to say nothing of this matter to any one until towards the latter part of the term, by which time everything would be running smoothly. I thought that a public announcement of my intention might be misconstrued and give rise to some uncertainties in the minds of students, leading to certain modification of courses, etc., all of which I thought to be unnecessary. In thus delaying the announcement of my departure, I believe I have acted wisely. At all events I had the interests of the university in my mind, and those interests alone, in so doing. I hope and believe that the board of trustees will see the matter as I do, and I hope you and they will understand that my withdrawal is not, in the slightest degree, due to any dissatisfaction which I might be supposed to feel with the present administration (for I am entirely satisfied with it), nor from any lack of confidence in the future standing and success of the institution. It will give me great pleasure to co-operate with the president and with the board in securing a suitable successor, and to further the interests of the university at any time in the future in any way in my power. To you personally, I desire to express my sincere thanks for the valuable aid and support which you have uniformly rendered me. In various undertakings in which I have been much interested, I have always been able to count upon your active and cordial support. I trust that this shall continue in my new field in which I shall serve the nation rather than the state.

I am, yours respectfully,
(Signed) T. C. MENDENHALL.

And on motion the following resolution was adopted:

WHEREAS, Prof. T. C. Mendenhall has severed his connection with the university in order to accept the position of Professor of Electrical Science in the United States Signal Service at Washingtan, D. C.; therefore,

Resolved, That the president of the faculty be, and he is hereby authorized to employ Messrs. Randall and Mark to take charge of the work of the physical department, and he is also authorized to accept such assistance in the direction of the class work as Prof. Mendenhall may be able to give during the remainder of the collegiate year.

Ordered, That the salary of Prof. J. E. Randall be fixed at $100 per month, and that of Prof. E. H. Mark at $75 per month.

President Scott read a letter from Prof. Mendenhall, requesting the loan of some micrometers in the physical laboratory, and, on motion of Mr. Cowgill, the matter was referred to Pres. Scott, with authority to make the loan if deemed proper to do so, and the instruments are not at present needed at the university.

Mr. Clark moved that a committee, consisting of the president of the board, the president of the faculty and one member of the board be appointed to consider filling the vacancies caused by the resignation of Prof. Mendenhall and the proposed resignation of Prof. McFarland. Adopted.

Mr. Clark was apointed the third member of the committee.

Ordered, That thirty dollars ($30) per term be appropriated for the payment of assistants in preparing subjects for dissection, etc.

Ordered, That the balance of the appropriation for removing and furnishing library and purchasing additions thereto, be drawn from the state treasury to meet obligations already incurred.

On motion of Mr. Clark, the president of the faculty is hereby authorized to expend $100 in immediately advertising the university.

Ordered, That thirty dollars ($30) per term be appropriated for assistants in the physical department.

(Signed) T. J. GODFREY, *President*.

COLUMBUS, O., *May* 4, 1885.

Pursuant to call of the president, the board of trustees met at the office of the secretary. Present, Thos. J. Godfrey, Seth H. Ellis, Lucius B. Wing, James B. Jamison, James H. Anderson, and Thos. A. Cowgill.

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The minutes of the last meeting were read, corrected and approved. The executive committee made a report of its proceedings since the last meeting of the board, and the same were also approved.

On motion of Mr. Ellis, Prof. Albert H. Tuttle was elected curator of the physiological museum.

Ordered, That $100 be appropriated for wall cases for the chemical laboratory, to be expended under the direction of Prof. Norton.

The expenditure of the library appropriation was intrusted to the committee who had in charge the expenditure of last year's appropriation.

Ordered, That $10.00 be appropriated to pay Clara G. Orton for teaching class in general history during Lieutenant Blocksom's absence.

Whereupon the board took a recess until 7:30 P. M.

MAY 4, 1885—7:30 P. M.

The board resumed its session. Present, the same members as at the afternoon meeting.

The secretary was directed to examine bill of costs in the case of William Colvin against the Ohio State University, and, if correct, to pay the same.

Adjourned to meet at 9 o'clock A. M., May 5, 1885.

COLUMBUS, O., *May* 5, 1885—9 O'CLOCK A. M.

The board met pursuant to adjournment. Present, the same members as yesterday.

The secretary was directed to confer with the water works trustees in reference to consolidation of accounts for water rents, and to pay bills due in order to save the ten per cent. reduction offered.

The secretary was also directed to write Captain Barton and request him to furnish to the board a statement of the unsold lands in the Virginia Military District, showing the number of each lot, its amount and location, its appraised value, if appraised, and any other facts relating thereto that may be of use in disposing of them.

The secretary was also directed to require of Samuel Kendrick a similar report of the lands discovered by him. The claim of Samuel Kendrick for one-half the net proceeds of the sale of lot 183 in Adams county, and lots numbered 125, 126 and 127, in Scioto county, was considered by the board. It was found that the purchase money due on said lots had all been paid, that the costs of survey, amounting to $137.85 had been paid, and that there remained of the proceeds of such sales, $662.15; that said Kendrick had been paid as his share of the net proceeds, as follows:

January 27, 1883	$ 83 89
September 7, 1883	131 56
March 4, 1884	88 48

That he is entitled still to one-half the final payments made on said lots, as follows:

One-half of last payment on lots 125 and 127 made November 20, 1884, amount paid, $81.46, and one-half of last payment on lot 126, made November 24, 1884, amount, $112.00—said one-half amounting to $96.73, for which the secretary is directed to draw an order on the treasurer in favor of Mr. Kendrick.

Ordered, That $16.00 be appropriated to pay H. T. Stephens for care of arms, equipments and military stores during the winter and spring terms, 1885, and that the secretary be directed to draw his order upon the treasurer in favor of Mr. Stephens for amount so appropriated.

The executive committee was directed to purchase a piano for the chapel at the university.

The repair of the bridge below the spring on the campus, and the removal of the debris of the janitor's residence were referred to the farm committee, with power to act.

Adjourned to meet at the university at 2 o'clock P. M.

MAY 5, 1885—2 O'CLOCK P. M.

The board met at the university pursuant to adjournment. Present, Godfrey, Ellis, Cowgill, Jamison and Wing.

On motion of Mr. Ellis, the president of the faculty was directed to advertise the university, and have bills therefor presented to the executive committee.

The building of a house for keeping animals for dissection and performing such operations was referred to the executive committee, with power to act.

The State Archæological and Historical society having made application for a room in which to store its collections, on motion of Mr. Wing, said society was invited to make its head-quarters at the university, and the president of the faculty was directed to provide them a room for storing such collections.

Ordered, That $50.00 be appropriated for equipment of a gymnasium for the young ladies, to be expended under the direction of Professor Tuttle.

On motion of Mr. Cowgill, the president of the faculty was directed to request the Secretary of the Navy to detail a competent naval officer for service at the university.

Mr. Cowgill moved to divide the chair of mathematics and establish a separate department of civil engineering. Lost.

A motion to fill the chair of History and English Language and Literature with a full professor, was carried, and the committee heretofore appointed to consider applications for the vacancies in chairs of Physics and Mathematics was directed to secure a competent professor for such chair.

Action on the application of Lieutenant Eldridge for additional compensation, was deferred until the next meeting of the board.

Ordered, That $300.00 be appropriated for purchase abroad of supplies for the chemical laboratory.

Professor Norton was authorized to procure new bowls to replace the broken ones in the chemical laboratory.

The making of the floor of the chemical laboratory sound-proof, and the removal of boiler in said laboratory to boiler-house of main building, were referred to the executive committee with power to act.

President Scott was directed to have necessary painting at his residence done, and send bills to executive committee for approval. He was also authorized to have necessary changes made in vault and drainage.

Thereupon the board adjourned to meet at the office of the secretary at 8:30 o'clock P. M.

MAY 5, 1885—8:30 P. M.

The board met pursuant to adjournment. Present, Godfrey, Anderson, Ellis, Wing, Cowgill and Jamison.

On motion of Mr. Wing, the entire arrangements for the next commencement were intrusted to the president and faculty.

The question of locating a building proposed to be erected by the state agricultural experiment station for seed-rooms, and the storage of tools and implements, was referred to the executive committee, with power to act.

President Scott was directed to open correspondence with a view of securing a competent teacher of mechanical and free-hand drawing.

The residences on the university grounds were placed under the control of the executive committee, with authority to make all necessary improvements and repairs thereof.

Mr. Wing moved to reconsider the vote whereby the board decided not to divide the chair of mathematics, and create a separate department of civil engineering. Carried.

Mr. Ellis moved to postpone further consideration of the subject until the next meeting of the board. Lost.

The question then recurring on Mr. Wing's original motion, the same was carried and the committee to whom had been referred all applications for vacancies, was instructed to secure the services of a competent professor of civil engineering to take charge of said department.

The president of the board called attention to a resolution adopted November 11, 1881, requiring each professor "to furnish to the secretary an inventory of apparatus and equipment belonging to his department, and annually thereafter a list of all additions or losses in such outfit as may have occurred," and President Scott was directed to call the attention of members of the faculty thereto.

Adjourned to meet at the office of the secretary, Monday evening, June 22, 1885.

(Signed) T. J. GODFREY, *President.*

COLUMBUS, O., *June* 22, 1885—9 O'CLOCK A. M.

The board of trustees met at the office of the secretary. Present, *Messrs.* Godfrey, Ellis, Booth, Jamison, Cowgill and Clark.

The minutes of the last meeting were read and approved.

The executive committee made a report of its proceedings at meetings of May 5th and 6th, and June 3, 1885, and the same was approved.

Mr. Cowgill called attention to the presence of Mr. Booth, the newly appointed member of the board, and welcomed him to its deliberations. There being a vacancy in the chairmanship of the executive committee, occasioned by the expiration of the term of J. H. Anderson, H. J. Booth was elected by ballot to fill such vacancy.

On motion of Mr. Ellis, Professors Townshend and Lazenby were appointed delegates to represent the university at a convention of agricultural colleges to be held at Washington, D. C., July 8, 1885.

On motion of Mr. Clark, the action of the committee appointed at the November meeting 1884, to consider the application of Prof. Orton for authority to absent himself during the spring term, and the employment of a competent person to take the classes in rhetoric during his absence, was confirmed. The employment of Mrs. K. Westendorf, at a compensation of $360, was approved.

The re-arrangement o' rooms made necessary by changes in the faculty, was referred to the executive committee and the president of the faculty, with power to act.

The following apportionment of the state appropriation for "laboratories" was made to be expended for supplies for said several departments:

For department of	geology	$100
"	physiology and zoology	300
"	chemistry	300
"	physics	500
"	mechanical engineering	75
"	agriculture	100

Prof. Mendenhall appeared before the board and represented that Gen. W. B. Hazen, chief signal officer, U. S. A., has offered to locate a special electrical station of U. S. signal service at the university, and will, if a proper room is provided, and the use of the proper and necessary apparatus is granted, detail a competent observer to take charge of said station, who will co-operate with the Ohio meteorological bureau in extending and developing such service. That such an arrangement will afford additional opportunities to the student in the physical department of the university for study and investigation in meteorology and kindred subjects.

The following resolution, relating to said proposition, was adopted:

Resolved, That such facilities as may be available and desirable for the establishment of a station for the study of atmospheric electricity, etc., be and are hereby offered to the chief signal officer, U. S. A., and the president of the faculty and the professor of physics are requested to arrange for the use of a suitable room for carrying on the work, and for the use of such of the appliances of the physical laboratory as may thus be utilized, without interfering, in any way, with the regular work of the department; and, further, that any officer or private in the army who may be detailed for this service by the chief signal officer, U. S. A., shall be allowed the privilege of attending any classes or laboratories in the institution without the payment of tuition or incidental fees.

On motion of Mr. Clark, the recommendation of Prof. Robinson, as to exchange of old boiler in the chemical laboratory for a new one, and placing the same in the boiler house, was referred to the executive committee, with instructions to carry out such recommendation.

The putting up of an additional gas-retort was also referred to the executive committee with instructions to act thereon.

Ordered, That the secretary be instructed to advertise for bids for coal, to be received up to July 7, 1885, at 10 o'clock A. M., the bids to be opened and contract to be awarded by the executive committee.

Ordered, That the salaries for June and September of the current year be paid out of the state appropriation for "salaries," as far as said appropriation will pay the same.

Mr. Cowgill offered the following resolution, which was adopted:

Resolved, That the secretary of the board of trustees be and is hereby authorized to draw his warrant on the auditor of state for the payment of all bills and accounts properly payable out of any of the several legislative appropriations for the Ohio state university, made during the last session of the general assembly, whenever the said bills and accounts are approved by the board, the executive committee, or the chairman thereof.

The board declined to take action on the proposition presented by Mr. Allwood to join in grading and graveling Woodruff avenue.

Mr Booth moved that the secretary be instructed to prepare and present to the board to-morrow a list of all worthless notes given for Virginia military lands, with a statement, in each case, of the facts which make the same worthless. Carried.

Prof. McFarland presented his reports as bursar and superintendent of campus, and the same were filed with the secretary.

Adjourned to meet at the university at 9 o'clock A. M. to-morrow.

OFFICE OF THE PRESIDENT, *June* 23, 1885—9 A. M.

The board met pursuant to adjournment.

Present, Thos. J. Godfrey, S. H. Ellis, Jas. B. Jamison, Peter H. Clark, Thos. A. Cowgill, and H. J. Booth.

The president presented a communication from Prof. Eldridge, requesting additional compensation for his services while at the university; and the same, with indorsements thereon, was read by the secretary. Mr. Ellis moved that the secretary be instructed to inform Prof. Eldridge that such request had been carefully considered by the board and respectfully refused.

Mr. Booth moved, as a substitute for the motion of Mr. Ellis, that $200 be allowed Prof. Eldridge for his services during the past year. The yeas and nays were demanded, and resulted as follows:

Yeas, Messrs. Booth and Clark; nays, Messrs. Cowgill, Ellis, Jamison and Godfrey.

The question recurring on the original motion, the same was carried.

Recess until 2 o'clock P. M.

JUNE 23, 1885—2 O'CLOCK P. M.

The board resumed its session at the university.

Present, all the members of the board.

The secretary presented a statement of the worthless notes given for Virginia military lands, prepared in accordance with the order of the board at its meeting of yesterday, in the words and figures following, representing to the board that all the facts therein had been obtained by him from Capt. C. A. Barton.

Statement of notes given for Virginia military lands in the hands of F. W. Prentiss, treasurer, and Capt. C. A Barton, agent, which are worthless for reasons given below:

Date	Maker.	Time.	Amount.	Remarks.
Feb. 3, 1874	Samuel Basore	1 year.	$76 67	Land returned to university by decree of Pike county court and sold to other parties.
3, "	same	2 years.	76 66	
Aug. 1, "	S. J. Davis	4 mos.	128 00	No part of purchase money paid. Land returned to university and sold to other parties.
1, "	same	1 year.	128 00	
1, "	same	2 years.	128 00	
3, "	same	4 mos.	38 20	No part of purchase money paid; sold to other parties.
3, "	same	1 year.	38 20	
3, "	same	2 years.	38 20	No part of purchace money paid; land sold to others.
Feb. 20, "	George Edwards...	1 year.	295 00	First payments made on lands for which notes were given. Purchaser afterwards died. Heirs and administrators failed to pay notes. Lands reverted to the university and were afterwards sold to other parties. Foregoing remarks apply to six notes of George Edwards.
20, "	same ...	2 years.	295 00	
Sept. 1, "	same ...	10 mos.	258 34	
1, "	same ...	1 year.	222 22	
1, "	same ...	2 years.	222 22	
1, "	same ...	3 years.	222 22	
Apr. 30, 1878	John Hux	1 year.	18 10	Lands reverted to university and were afterwards sold to W. R. Walker.
30, "	same	2 years.	18 10	
2, 1875	Martin V. Rankin..	1 year.	266 66	Returned to university by decree of Pike county court and sold to other parties.
2, "	same ..	2 years.	266 66	
Oct. 15, 1874	John M. Sloan	1 year.	62 66	Duplicate note.
15, "	same	2 years.	62 66	Duplicate note.
May 2, 1879	Wm. Staley..........	3 "	20 00	Duplicate note.
2, "	same	4 "	20 00	Duplicate note.
2, "	same	5 "	20 00	Duplicate note.
Apr. 28, 1875	Geo. W. Hopper ...	1 year.	78 33	Interest paid for several years. Lands reverted to university and sold to Hall & Smith.
28, "	same ...	2 years.	78 33	
Nov. 2, 1874	James Taylor	4 mos.	1,706 60	Seventy-five dollars of purchase money paid. Lands returned to university by decree of Scioto county court and sold to other parties.
2, "	same	1 year.	1,806 60	
	same	2 years.	1,806 60	

STATEMENT OF VIRGINIA MILITARY LANDS—Continued.

Date.	Maker.	Time.	Amount.	Remarks.
Oct. 15, 1874	Asenath M. Watson	2 years.	90 84	Duplicate note.
15, "	same	2 "	90 84	Duplicate note.
June 1, 1877	A. J. Waters	1 year.	21 00	Lands had been previously sold to other parties.
1, "	same	2 years.	21 00	
Dec. 22, 1874	Benjamin Porter...	1 year.	38 25	Two-thirds of lot sold having been lost by interfering with valid survey; notes became void.
22, "	same ...	2 years.	38 25	
July 24, 1876	Allen W. Brown ...	1 year.	18 33	Note dep. in Kinney Nat. Bank for collection. Bank failed. Note found among papers. Deed had been made in belief that note was paid. In meantime Brown had died insolvent.

On motion, the secretary was directed to procure from Capt. C. A. Barton such of the notes mentioned in the foregoing statement as are now in his possession, and indorse all the notes mentioned in said list as "worthless," and indorse upon each the reason why it is not good and collectible, and then deposit the same with the treasurer, F. W. Prentiss, who is directed to file and preserve them with the papers n his custody.

Mr. Cowgill offered the following resolution, which was unanimously adopted:

Resolved, That, whereas the term of service of Hon. J. H. Anderson as trustee of the university has expired, the board takes occasion at its first meeting after such expiration, to place on record its appreciation of the zeal and ability which have characterized Mr. Anderson's labors on behalf of the university.

Mr. Booth offered the following resolution, which was adopted:

Resolved, That members of the faculty shall not, during term time, leave the university to engage in any other work without the express consent of the president of the faculty, or, in cases of prolonged absence, of the board of trustees; and the secretary is hereby directed to furnish a copy of this resolution to each member of the faculty.

Mr. Jamison offered the following resolution, which was unanimously adopted.:

Resolved, That the salary of the president of the university be fixed at three thousand dollars per annum.

Ordered, That the special appropriations for "equipment laboratory, agricultural chemist," and for "additions to equipment, mechanical laboratory," be expended by the heads of said departments, under the advice and direction of the executive committee.

On motion of Mr. Jamison, the following members of the faculty were re-elected to the chairs named in the present catalogue:

William H. Scott, Edward Orton, Sidney A. Norton, Norton S. Townshend, Albert H. Tuttle, Stillman W. Robinson, Nathaniel W. Lord, Samuel C. Derby, William R. Lazenby, Josiah R. Smith, Henry A. Weber and Alice K. Williams.

Samuel C. Derby was re-elected librarian.

Mr. Ellis offered the following resolution, which was adopted:

Resolved, That the campus be placed in care of Prof. Lazenby, who is hereby charged with the general supervision of the grounds, provided that all plans for alterations or improvement thereof, before being executed, shall first be submitted to the executive committee for approval. Said services to be rendered without additional compensation.

The committee heretofore appointed to consider applications for vacancies in the faculty, made its report and recommended the following:

For chair of physics	Benjamin F. Thomas.
" " " mathematics	George C. Comstock.
" " " history, &c	George W. Knight.
" " " civil Engineering	C. N. Brown as Asst. Prof.

On motion of Mr. Ellis, Benjamin F. Thomas was duly elected professor of physics.

On motion of Mr. Cowgill, George C. Comstock was duly elected professor of mathematics.

On motion of Mr. Jamison, C. N. Brown was elected assistant professor of civil engineering.

Mr. Ellis moved that George W. Knight be elected professor of history and English language and literature.

Mr. Booth moved to substitute the name of A. H. Welsh for that of George W. Knight, in said motion.

After some discussion of said motion and substitute, further consideration of the same was postponed until the evening session of the board.

Upon the recommendation of the faculty the following degrees were conferred upon the persons named:

William Preston Bently, Wilmington, Clinton county, Ohio, B. Ag.
Clarence Creesy Greene, Middleport, Meigs county, Ohio, B. Sc.
William Henry Harrison, Columbus, Franklin county, Ohio, C. E.
Ellis Lovejoy, Columbus, Franklin county, Ohio, E. M.
William Rufus Malone, Conneaut, Ashtabula county, Ohio, B. A.
Charles Allen Marple, Columbus, Franklin county, Ohio, B. Sc.
Melvin Noble Mix, Columbus, Franklin county, Ohio, B. Ph.
William Lincoln Peters, Columbus, Franklin county, Ohio, Mech. Eng.
Charles Vernon Pleukharp, Columbus, Franklin county, Ohio, Mech. Eng.
Willis Jay Root, Andover, Ashtabula county, Ohio, E. M.
Edward Louis Tascher Schaub, Columbus, Franklin county, Ohio, Mech. Eng.
Charles Felton Scott, Columbus, Franklin county, Ohio, B. A.
Mary Odella Scott, Columbus, Franklin county, Ohio, B. A.
Francis Asbury Taylor, London, Madison county, Ohio, B. A.
George Ransen Twiss, Columbus, Franklin county, Ohio, B. Sc.
Philo Christopher Smith, Canton, Stark county, Ohio, B. Sc.

The board then adjourned to meet at the office of the secretary at 8 o'clock P. M.

COLUMBUS, O., *June* 23, 1885—8 P. M.

The board met at the office of the secretary. Present, all the members.

Consideration of the motion of Mr. Booth, to substitute the name of A. H. Welsh in the motion of Mr. Ellis to elect George W. Knight professor of history and English language and literature, was resumed.

The question being on the adoption of the motion of Mr. Booth, the yeas and nays were demanded, and resulted as follows: Yeas, Messrs. Booth, Clark and Cowgill. Nays, Messrs. Ellis, Wing, Jamison and Godfrey.

The question then recurring on the original motion of Mr. Ellis, the same was adopted, and George W. Knight was declared duly elected professor of history and English language and literature.

Mr. Booth moved to elect A. H. Welsh assistant professor of history and English language and literature.

President Scott stated that Cynthia U. Weld, the present head of said department, would not be a candidate for the place of assistant.

Mr. Ellis moved to substitute the name of Charles H. J. Douglass in the motion of Mr. Booth. Lost.

The question then being on Mr. Booth's motion, the same was carried, and Mr. A. H. Welsh was declared duly elected assistant professor of history and English language and literature.

The secretary was directed to discharge the duties of "Bursar," until the further order of the board.

The secretary read a communication from Lieut. Blocksom, asking that the order heretofore made providing for excusing the sophomore class from military drill be rescinded. Owing to the difficulty in arranging the class work so as to provide for such drill, said request was respectfully declined.

The following additional apportionment of the state appropriations for "laboratories" was made.

For supplies mining department	$ 60 00
supplies horticultural and botanical department	300 00
equipment physiology and zoology	500 00
equipment, civil engineering department	$200 00
purchase of minerals, mining "	100 00
chart on walls in chemical laboratory	90 00
shelves in foul gas-room, chemical laboratory	5 00
" combustion room, "	5 00

Mr. Booth offered the following resolution, which was adopted:

Resolved, That the board instruct the secretary to notify heads of departments that no bills in excess of the respective amounts appropriated for the several departments will be allowed by the executive committee, and said committee is hereby instructed not to approve any bills incurred by the head of any department, unless it bears his indorsement of the balance, if any, of the fund then remaining unexpended.

The following were established as the fees in the several laboratories:

Chemical laboratory	$10 00
Agricultural chemical laboratory	10 00
Physiological and zoological laboratory	8 00
Physical laboratory	7 00
Mining "	7 00
Mechanical "	3 00
Botanical and horticultural laboratory, physic botany	2 00
Laboratory economic botany	1 00
" preparatory botany	50

On motion of Mr. Cowgill, Mr. J. N. Bradford was elected as instructor in mechanical and free-hand drawing, at a salary of $1,000 per annum.

On motion of Mr. Clark, George W. McCoard was elected assistant in mathematics and latin, at a salary of $1,200.

On motion of Mr. Clark, the salaries of professors Comstock and Knight were fixed at $2,000.

The salary of professor Thomas, at $2,250, and the salary of assistant professor Brown at $1,200.

The salary of assistant professor Welsh was fixed at $1,200.

On motion of Mr. Clark, the executive committee was authorized to employ an assistant in the physical laboratory, at a salary of not more than $600.

On motion of Mr. Ellis, the executive committee was authorized to employ an assistant in the physiological laboratory, at a salary of not more than $150.

Miss Emma C. Lehner was elected assistant librarian, at a salary of $125.

Vernon J. Emory was appointed clerk to President Scott, at a salary of $125.

The executive committee was directed to audit and pay all bills for expenses of commencement.

Mr. Clark offered the following resolution, which was adopted:

Resolved, That the president of the board, the president of the faculty, and the chairman of the executive committee be appointed a committee to secure the services of legal gentlemen of competent talent who may be willing to give their services free of charge, and by their aid establish a course of lectures on law, to be given in the course of the ensuing year, and that they make a due announcement of the same.

Adjourned to meet at 9 A. M., June 24, 1885.

COLUMBUS, O., *June* 24, 1885—9 A. M.

The board met pursuant to adjournment.

Present, T. J. Godfrey, S. H. Ellis, H. J. Booth, Thomas A. Cowgill, James B. Jamison and Peter H. Clark.

Dr. Townshend was heard in reference to division of appropriation for "veterinary museum, etc."

Mr. Clark offered the following resolution, which was adopted:

Resolved, That $1,500 of the amount appropriated for "veterinary museum, etc;" be used in common by professors Townshend and Tuttle for erecting a building for dissection, the preparation of basement for a common museum, and that the remaining $500 be used by Dr. Townshend in purchase of equipment and supplies for his department.

Ordered, That $100 of appropriation for "ordinary repairs" be set apart for enlarging pipes for wetting floors of moulding and forging rooms in mechanical laboratory, to be expended under direction of Prof. Robinson.

On motion of Mr. Cowgill, the salary of Miss Alice Williams was fixed at $1,000.

Mr. Jamison moved that the matter of establishing a school of pharmacy be referred to president Scott and chairman Booth, of the executive committee, who are directed to consult with Prof. Norton in reference thereto, and, if expedient, to establish such school and expend therefor the sum of $200, which is appropriated for that purpose. Carried.

Mr. Clark offered the following resolution, which was adopted:

Resolved, That the president and faculty be requested to arrange with the educational authorities, or other proper persons, in the various counties, for the examination of candidates for admission to the university, and that in the counties where such arrangement has been made, they be authorized to make due advertisement of the conditions of admission and the time and place of said examinations.

On motion of Mr. Jamison, all matters connected with janitor's residence, adjustment of rent, and employment, be referred to the executive committee, with power to act.

On motion the salaries of members of the faculty and assistants, not already fixed, were fixed the same as last year.

Capt. Barton presented account of Devers & Ryan for professional services in case of board of trustees vs Elias Simpson, amount, $25, and the same was allowed and ordered paid.

Ordered, That the expense account of Capt. C. A. Barton, agent for sale of Virginia military lands, amounting to $91.75, was allowed and paid, that he be paid a salary of $25 per month for four months from June to November, 1884, and that he present an account for his services from November, 1884, to June, 1885, to the executive committee for allowance and payment.

Mr. Clark offered the following resolution, which was adopted:

Resolved, That the secretary be instructed to collect, from the records of the board all rules passed for the regulation of the university, its faculty, students, and officers, and of this board, and that he submit the same for the approval of this board at its meeting in November.

Mr. Booth offered the following resolution, which was unanimously adopted:

Resolved, As an expression of our appreciation of the character and services of Professor R. W. McFarland and Professor T. C. Mendenhall, who have recently severed their official connection with the Ohio state university, that the interests of the university and the cause of higher education have been greatly promoted by their high character, ripe scholarship, and broad culture, and thereby they have largely aided in bringing the institution to the front rank of American universities; and, while we regret to lose their services, we wish them, in their newly chosen fields of labor and usefulness, that large measure of success of which their distinguished labors here are a sufficient guaranty.

Mr. Booth also offered the following resolution, which was adopted:

Resolved, That the services of Captain C. A. Barton for this board having ceased, the secretary perform such duties as may be necessary in relation to the Virginia military lands without charging any compensation in addition to his salary as secretary, and that Captain Barton, on his demand, turn over to the secretary all papers, books, records, etc., now in his possession or under his control relating to said business, and that the secretary shall, under the direction of the executive committee, close up said business as soon as possible.

Mr. Booth moved that the secretary be instructed to furnish Prof. Eldridge with a statement in writing, of the reasons which actuated the board in refusing to allow him the additional compensation he claims. Said motion was lost. Adjourned.

(Signed) T. J. GODFREY,
President.

COLUMBUS, OHIO, *September* 2, 1885.

The board met pursuant to call of the President. President, Thos. J. Godfrey, President; H. J. Booth, S. H. Ellis, Lucien B. Wing, and Thos. A. Cowgill, and adjourned to meet at 8 o'clock P. M.

SEPTEMBER 2, 1885—8 O'CLOCK P. M.

The board met pursuant to adjournment. Present, all the members except Messrs. Jamison and Clark.

The minutes of the last meeting were read and approved. The report of the proceedings of the executive committee since the last meeting of board were also read and approved.

On motion of Mr. Wing, the action of the board at its last meeting, whereby the fee for the agricultural chemical laboratory was fixed at ten dollars, was reconsidered, and the fee fixed at eight dollars.

Prof. Thomas made a report on the subject of an assistant in the physical department, and stated that he had been unable to find a suitable person for the place at the compensation fixed by the board.

On motion of Mr. Wing, the action of the board fixing the compensation of the assistant in the physical department at $600 per annum, was reconsidered, and J. E. Randall was elected such assistant at a salary of $800.

The secretary reported that contracts for coal had been entered into with the Columbus & Hocking Coal and Iron Company for lump coal at $1.70 per ton, and Youghiogheny gas coal at $2.75 per ton, and with M. A. Suydam for anthracite at $5.84 per ton.

Adjourned to meet at 9 o'clock A. M., September 3, 1885.

SEPTEMBER 3, 1885—9 O'CLOCK A. M.

The board met pursuant to adjournment. Present, Thos. J. Godfrey, Thos. A. Cowgill, S. H. Ellis, H. J. Booth, Peter H. Clark, and Lucien B. Wing.

Mr. Emmet Mix, president of the board of control of the Ohio agricultural experiment station, was heard in reference to the existing arrangement for occupation by said station of additional grounds on the university farm.

Mr. Wing offered the following resolution in reference thereto, which was unanimously adopted:

Resolved, That the chair appoint Messrs. Ellis, Cowgill and Booth a committee to confer with the board of control of said station on matters connected with the occupation of certain grounds on the university farm, and report the result of such conference at the next meeting of the board.

After a general discussion of the feasibility of establishing a school of veterinary science at the university, Mr. Cowgill offered the following resolution, which was adopted:

Resolved, That there be established at the university a school of veterinary science.

Ordered, That Mr. Booth, President Scott, and Professor Townshend, be authorized to select a professor of veterinary surgery at a salary of $1 000, subject to confirmation by the board at its next meeting, and that the person so chosen shall occupy the home occupied by Professor Derby, as soon as it is vacant, at an annual rental of $250.00.

Mr. Ellis moved that David O'Brine be employed as assistant in the chemical department at a salary of $1,000.

Mr. Cowgill moved to amend by making the salary $800. The amendment was lost.

Mr. Wing moved to amend by making the salary $900. Carried.

The motion as amended was carried.

The secretary was directed to put in order and carpet the room in main building occupied by the young ladies.

The committee appointed to consider the feasibility of providing for a course of law lectures at the university reported progress, and was continued.

The committee appointed at the last meeting with reference to the establishment of a school of pharmacy, reported that they had decided that such a school should be established, and that they had employed Mr. George B. Kauffman as lecturer on pharmacy. Said report was adopted, and the said committee was continued and directed to arrange with Mr. Kauffman as to his compensation.

On motion of Mr. Cowgill, the secretary was directed to expend not exceeding $40, on each of the new houses in painting, papering, etc.

On motion of Mr. Wing, the secretary was directed to have instructions for taking care of furnaces, printed and posted on or near the same, and call the attention of occupants of new residences thereto.

On motion of Mr. Clark, the executive committee was directed to replace worn out boiler in the horticultural building.

On motion, it was ordered that the executive committee require the Columbus warm air furnace company to case up the conductors connected with the furnaces placed in the residences, extending from the lower to the upper stories, which have not already been properly cased up, within five days from this date, and, in default thereof, that said committee do said work, and deduct the cost thereof from the contract price of said furnaces, and that the committee immediately notify the said Columbus warm air furnace company of this action.

Ordered, That the bills for grouting the cellars and putting furnaces in the three new residences be paid out of the funds received from the sale of Virginia military lands.

Adjourned.

(Signed) T. J. GODFREY.

CATALOGUE

OF THE

OHIO STATE UNIVERSITY,

FOR THE YEAR 1885.

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UNIVERSITY CALENDAR.

1885.

November 26 and 27,	Thursday and Friday,	Thanksgiving Holidays.
December 17,	Thursday,	Term Examinations begin.
December 23,	Wednesday,	Fall Term ends.

1886.

January 7,	Thursday,	Winter Term begins.
March 26,	Friday,	Term Examinations begin.
March 31,	Wednesday,	Winter Term ends.
April 8,	Thursday,	Spring Term begins.
May 23,	Saturday,	Senior Examinations end.
June 16,	Wednesday,	Term Examinations begin.
June 20,	Sunday,	Baccalaureate.
June 21 and 22,	Monday and Tuesday,	Entrance Examinations.
		Commencement of Literary Societies.
June 22,	Tuesday,	Class-Day Exercises.
June 23,	Wednesday,	Commencement.
September 14 and 15,	Tuesday and Wednesday,	Entrance Examinations.
September 16,	Thursday,	Registration Day.

BOARD OF TRUSTEES.

HON. JAMES B. JAMISON	Cadiz.
SETH H. ELLIS	Springboro.
LUCIUS B. WING	Newark.
HON. THOMAS J. GODFREY	Celina.
HON. THOMAS A. COWGILL	Kennard.
PETER H. CLARK	Cincinnati.
HON. HENRY J. BOOTH	Columbus.

OFFICERS OF THE BOARD:

HON. THOMAS J. GODFREY	*President.*
SETH H. ELLIS	*Vice-President.*
ALEXIS COPE	*Secretary.*
FRED. W. PRENTISS	*Treasurer.*

EXECUTIVE COMMITTEE:

H. J. BOOTH, L. B. WING, T. A. COWGILL.

FARM COMMITTEE:

L. B. WING, S. H. ELLIS, J. B. JAMISON.

FINANCE COMMITTEE:

P. H. CLARK, J. B. JAMISON, T. J. GODFREY

FACULTY AND INSTRUCTORS.

WILLIAM H. SCOTT, LL. D., University Grounds.
President, and Professor of Philosophy.

EDWARD ORTON, PH. D., LL. D., 104 Twentieth Street.
Professor of Geology.

SIDNEY A. NORTON, PH. D., LL. D., Cor. Town and Seventh Sts.
Professor of General and Applied Chemistry.

NORTON S. TOWNSHEND, M. D., University Grounds.
Professor of Agriculture and Veterinary Science.

ROBERT W. McFARLAND, A. M., LL. D.,[1] University Grounds.
Professor of Mathematics and Civil Engineering.

ALBERT H. TUTTLE, M. Sc., University Grounds.
Professor of Zoology and Comparative Anatomy.

STILLMAN W. ROBINSON, C. E., 1205 North High Street.
Professor of Mechanical Engineering.

THOMAS C. MENDENHALL, PH. D.,[2] University Grounds.
Professor of Physics.

NATHANIEL W. LORD, E. M., Room 16, Hayden Block, E. Broad St.
Professor of Mining and Metallurgy.

SAMUEL C. DERBY, M. A., University Grounds.
Librarian, and Professor of the Latin Language.

WILLIAM R. LAZENBY, B. AG., University Grounds.
Professor of Horticulture and Botany.

JOSIAH R. SMITH, M. M., Indianola Place.
Secretary, and Professor of the Greek Language.

HENRY A. WEBER, PH. D., University Grounds.
Professor of Agricultural Chemistry.

BENJAMIN F. THOMAS, PH. D.,[3] University Grounds
Professor of Physics

GEORGE C. COMSTOCK, PH. B., LL. B.,[4]
Professor of Mathematics and Astronomy.

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[1] Resigned at close of fall term, 1884.
[2] Resigned at close of spring term, 1885.
[3] Elected June 16, 1885.
[4] Elected June 16, 1885.

GEORGE W. KNIGHT, M. A., Ph. D.,[1] University Grounds.
Professor of History and English Language and Literature.

H. J. DETMERS, V. S., Cor. Sixteenth and Waldeck Avenues.
Professor Veterinary Surgery.

AUGUSTUS P. BLOCKSOM, First Lieut. 6th Cavalry, U. S. A., Park Hotel.
Professor of Military Science and Tactics, and Assistant Professor of Mathematics.

FRANK H. ELDRIGE, Ass't Eng. U. S. N.,[2] 99 Lexington Avenue.
Secretary and Professor of Steam Engineering.

CYNTHIA U. WELD, A. M.,[3] Cor. Sixteenth and Waldeck Avenues.
Assistant Professor of History and English Language and Literature.

C. NEWTON BROWN,
Assistant Professor of Civil Engineering.

ALICE K. WILLIAMS, Woodruff Avenue.
Instructor in the French and German Languages.

MRS. KATHERINE WESTENDORF,
Instructor in Elocution.

GEORGE B. KAUFFMAN, B. S., 60 Garfield Avenue.
Lecturer on Pharmacy.

DAVID O'BRINE, M. E., M. Sc., M. D.,
Assistant in Chemistry.

GEORGE W. McCOARD, M. A., East Town Street.
Assistant in Mathematics and Latin.

JOHN E. RANDALL, B. A.,
Assistant in Physics.

JOSEPH N. BRADFORD, M. E., 21 South Garfield Avenue.
Assistant in Drawing and Mechanical Engineering.

ALFRED H. WELSH, M. A., 200 East Spring Street.
Assistant in History and English.

HORACE P. SMITH,
Assistant in Zoology and Comparative Anatomy.

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[1] Elected June 16, 1885.
[2] Time expired at close of spring term, 1885.
[3] Resigned at close of spring term, 1885.

OTHER OFFICERS.

HENRY A. WEBER,
Superintendent of Farm.

WILLIAM R. LAZENBY,
Superintendent of Grounds.

EMMA C. LEHNER,
Assistant Librarian.

VERNON J. EMERY,
President's Clerk.

HARVEY H. PARRY,
Janitor.

OHIO GEOLOGICAL SURVEY.

Officers at the University.

EDWARD ORTON,
State Geologist.

NATHANIEL W. LORD,
Chemist.

OHIO AGRICULTURAL EXPERIMENT STATION.

Officers at the University.

WILLIAM R. LAZENBY,
Director.

HENRY A. WEBER,
Chemist.

WILLIAM S. DEVOL,
Botanist.

WILLIAM B. ALWOOD,
Superintendent of Field Experiments.

WILLIAM J. GREEN,
Superintendent of Horticultural Experiments.

OHIO METEOROLOGICAL BUREAU.

Officers at the University.

BENJAMIN F. THOMAS,
Director.

EDGAR B. MARK,
Secretary.

WILLIAM H. ALWOOD,
Observer.

STANDING COMMITTEES OF THE FACULTY.

The university has been divided, for convenience, into four schools, and the affairs of each school have been assigned to a standing committee of the faculty. The president of the university is *ex-officio* chairman of each committee.

I. THE SCHOOL OF AGRICULTURE.

PROFESSOR LAZENBY, *Secretary.*

PROFESSORS TOWNSHEND, ROBINSON, LORD, TUTTLE, WEBER.

II. THE SCHOOL OF ARTS AND PHILOSOPHY.

PROFESSOR DERBY, *Secretary.*

PROFESSORS ORTON, NORTON, SMITH, KNIGHT AND WILLIAMS.

III. THE SCHOOL OF SCIENCE.

PROFESSOR TUTTLE, *Secretary.*

PROFESSORS NORTON, THOMAS, COMSTOCK, ORTON.

IV. THE SCHOOL OF ENGINEERING.

PROFESSOR LORD, *Secretary.*

PROFESSORS COMSTOCK, ROBINSON, THOMAS.

DEGREES CONFERRED JUNE, 1885.

Bentley, William Preston,	**Wilmington, Clinton**	**county,**	**B. Ag.**
Green, Clarence Creesy,	**Middleport, Meigs**	"	**B. Sc.**
Harrison, William Henry,	**Columbus, Franklin**	"	**C. E.**
Lovejoy, Ellis,	"	"	**E. M.**
Malone, William Rufus,	**Conneaut, Ashtabula**	"	**B. A.**
Marple, Charles Allen,	**Columbus, Franklin**	"	**B. Sc.**
Mix, Melvin Noble,	"	"	**B. Ph.**
Peters, William Lincoln,	"	"	**M. E.**
Pleukharp, Charles Vernon,	"	"	**M. E.**
Root, Willis Jay,	**Andover, Ashtabula**	"	**E. M.**
Schaub, Edward Louis Tascher,	**Columbus, Franklin**	"	**M. E.**
Scott, Charles Felton,	"	"	**B. A.**
Scott, Mary Odella,	"	"	**B. A.**
Smith, Philo Christopher,	**Canton, Stark**	"	**B. Sc.**
Taylor, Francis Asbury,	**London, Madison**	"	**B. A.**
Twiss, George Ransom,	**Columbus, Franklin**	"	**B. Sc.**

CATALOGUE OF STUDENTS.

This catalogue contains only the names of those students who have been in attendance during the first term of the current college year, together with the small number who entered during the second and third terms of the last year but have not returned. Besides these, there have been in attendance within the year 144 students whose names appeared in the last catalogue, but as they are not now in the university, their names are not republished. The entire number of different students in attendance within the year was 467.

RESIDENT GRADUATES.

Lovejoy, Jessie R.	B. Sc.	Columbus, Franklin	county.
Sabine, Annie Ware	B. A.	"	"
Scott, Charles Felton	B. A.	"	"
Scott, Mary Odella	B. A.	"	"
Shepardson, George De Frees Denison University.	B. A.	Granville, Licking	"

UNDERGRADUATES.

SENIOR CLASS.

Connell, William Adams	E. M.	Portsmouth, Scioto	county.
Converse, Edward Jasper	B. A.	Columbus, Franklin	"
Cunningham. George Strode	B. Ph.	Lancaster, Fairfield	"
Devol, William Stow	B. Ag.	Marietta, Washington	"
Erskine, James H.	E. M.	Lowellsville, Mahoning	"
Fisher, Clara	B. A.	Columbus, Franklin	"
Hill, Frank Edwin	B. Sc.	Neville, Clermont	"
Jones, Alfred Andrew	C. E.	Columbus, Franklin	"
Keifer, William White	B. A.	Springfield, Clarke	"
Masters, George Albert	C. E.	Toledo, Lucas	"
Milligan, James Porter	B. A.	Rushville, Fairfield	"
Sabine, Wallace Clement	B. A.	Columbus, Franklin	"
Schroll, Otto	C. E.	"	"
Scott, Anna Neill	B. A.	"	"
Smith, Horace Porter	B. Sc.	Adams Mills, Muskingum	Co.
Snyder, David Forrest	E. M.	Springfield, Clarke	county.
Vandervoort, William F	E. M.	Morrow, Warren	"
Viets, Willis Burton	E. M.	Amboy, Ashtabula	"
Watt, Sern Perley	M. E.	Jamestown, Neb.,	"

JUNIOR CLASS.

Baker, Gano Reeder, B. A. Antioch College.	C. E.	Yellow Springs, Greene	county.
Charters, William Filson	B. Ph.	New Lisbon, Columbiana	"
Converse, Howard Pendleton	B. Sc.	Columbus, Franklin	"
Corns, Henry	B. A.	London, Madison	"
Eisenlohr, Berthold August	M. E.	Columbus, Franklin	"
Emery, Vernon Judson	B. A.	Napoleon, Henry	"
Haas, Louis George	C. E.	Dayton, Montgomery	"

Hannum, William Hamilton	B. A.	Lancaster, Fairfield county.
Hazlett, Robert, Jr	C. E.	Wheeling, W. Va.
Hull, Joseph Curtis	E. M	Columbus, Franklin "
Hunt, William Franklin	M. E	Miamisburg, Montgomery co.
Hunter, Theodore Alton	B. A.	Union City, Pa.
Hyde, Wilby Grimes	B. A.	New Holland, Pickaway county.
Jones, Augustus Winthrop, B. A Antioch College.	C. E.	Yellow Springs, Greene "
Jones, Olive Branch	B. A.	Newark, Licking "
McPherson, William, Jr.	B. Sc	Xenia, Greene "
Mullay, Annie	B. Ph	Columbus, Franklin "
Myers, Joseph Simmons	B. A.	" "
Myers, Uriah Henry	E. M	" "
Payne, Halbert Edwin	M. E	Fostoria, Seneca "
Ray, Frank Arnold	E. M	Jefferson, Ashtabula "
Reeves, Archibald Crawford	C. E.	Dayton, Montgomery "
Scott, Daisy Medill	B. A.	Columbus, Franklin "
Scott, May Mermod	B. A.	" "
Sharp, Amor William	B. Sc	" "
Siebert, Wilbur Henry	B. A.	" "
Siegel, Frank Anthony	B. Sc	" "
Taylor, Joseph Russell	B. A.	London, Madison "
Webb, Scott Anderson	B. Ph	Jefferson, Ashtabula "
Woodworth, Henry Julian	B. Sc	" "
Zaumseil, Oscar Clemens	C. E.	Ripley, Brown "

SOPHOMORE CLASS.

Aldrich, Chester Hardy	B. A.	Pierpont, Ashtabula county.
Atkins, Gains Glenn	B. A.	Columbus, Franklin "
Ball, Fred Samuel	B. Ph	Portsmouth, Scioto "
Boyd, Emma	B. Ph	Plain City, Madison "
Brown, Frederick Winder	E. M	Zanesfield, Logan "
Brundage, Lawrence Houghton	B. Sc	Xenia, Greene "
Capron, Marshall Fremont	B. Sc	Conneaut, Ashtabula "
Cellarius, Frederick Julius	C. E.	Dayton, Montgomery "
Crawford, William Sterling	B. Ph	Cuyahoga Falls, Summit "
Detmers, Fredericka	B. Sc	Champaign, Illinois.
Dyer, Joseph Hooker	B. Ph	Georgesville, Franklin county.
Eckhardt, Robert	B. Ph	Columbus, Franklin "
Eitzpatrick, John Joseph	E. M	Columbiana, Columbiana "
Fravel, George Bancroft	M. E	Columbus, Franklin "
Garrett, Howard Thompson	M. E	" "
Gates, Henry Morton	C. E.	" "
Hawley, Charles Augustus	B. A.	Milan, Erie "
Hedges, Henry	B. A.	Urbana, Champaign "
Kingsbury, Albert	M. E	Cuyahoga Falls, Summit "
Lehner, Emma	B. Sc	Mifflinsville, Franklin "
Lord, Henry Curwen	B. Sc	Cincinnati, Hamilton "
McLaughlin, James Bennett	M. E	Clarksville, New York.
McLaughlin, John Rushmore	M. E	" "
Miller, Ira Harris	B. A.	Columbus, Franklin county.
Mix, Edgar Woods	B. Sc	" "
Noel, Elijah Putnam	B. Ph	Portsmouth, Scioto "
Oppenheimer, Samuel	C. E.	Marion, Marion "
Prine, William Ellsberry	B. A.	Ironton, Lawrence "
Scheibell, William Olive	E. M	Mont Clair, New York.
Emma Scott	B. Sc	Columbus, Franklin county.
Smith, George Anthony	B. Sc	Columbus, "
Stephens, Herbert Taylor	B. A.	Adrian, Michigan.
Taylor, Frank James	C. E.	Fort Vancouver, W. T.
Van Harlingen, Katherine	B. Sc	Columbus, Franklin county.
Wadsworth, F. Lawton Olcott	C. E.	Wellington, Lorain "
Whiley, Charles Bell	B. A.	Lancaster, Fairfield "
Wilgus, James Alva	B. Ph	Conover, Miami "

FRESHMAN CLASS.

Addison, Louis Granville	B. Ph	Zanesville, Muskingum	county.
Angier, George McNeil	B. Sc	Columbus, Franklin	“
Baker, Walter Bangs	C. E	Tiffin, Seneca	“
Bannon, Henry Towne	B. Ph	Portsmouth, Scioto	“
Barcalow, John B	B. A	Columbus, Franklin	“
Beatty, William Gurley	B. Ag	“	“
Bloom, George	C. E	Xenia, Greene	“
Bownocker, John Adams	B. Sc	Amanda, Fairfield	“
Callinan, William Hawkins	C. E	Columbus, Franklin	“
Carle, Roscoe Litchfield	C. E	Tiffin, Seneca	“
Cathcart, Clarence Cassius	B. Ph	West Milton, Miami	“
Cathcart, Josephine Maud	B. Sc	Columbus, Franklin	“
Caylor, Chauncey Leander	M. E	“	“
Craig, Moses	B. Ph	Rochester, New York.	
Fergus, John Franklin	B. Ph	WestCharleston, Miami	county.
Floto, Henry August Julius	C. E	Cincinnati, Hamilton	“
Fox, Edgar B	B. Sc	Columbus, Franklin	“
Gains, Charles E	B. Ph	London, Madison	“
Garber, Alberta Donnezetta	B. Ph	Columbus, Franklin	“
Gregg, Frank Benham	B. Ph	Springboro, Warren	“
Hagler, Howard	B. Ag	Washington, C.H., Fayette	“
Hall, Harrison Robert	E. M	Cleveland, Cuyahoga	“
Hayes, Seth	B. Sc	Columbus, Franklin	“
Heller, Albert Henry	C. E	Wapakoneta, Auglaize	“
Holton, Harry	C. E	Columbus, Franklin	“
Horton Henry Pomeroy	B. Ph	Pomeroy, Meigs	“
Jones, Jesse Lee	B. A	Martin's Ferry, Belmont	“
Kemmler, Edward Albert	C. E	Columbus, Franklin	“
Kiehl, Harry Ambrose	M. E	Dayton, Montgomery	“
Kirker, Henry L	B. Sc	Ironton, Lawrence	“
Knopf, Sidney Phillip	M. E	Columbus, Franklin	“
Lamb, Louis Albert	E. M	Akron, Summit	“
Lincoln, John Cromwell	M. E	Columbus, Franklin	“
Martin, John Madison	B. A	Stella, Vinton	“
Meek, William Warfield	B. Ph	Columbus, Franklin	“
Milan, Katie	B. A	Troy, Miami	“
Miller, William Henry	B. Sc	McArthur, Vinton	“
Morrey, William Thomas	B. A	Chester Hill, Morgan	“
Needels, Blanche Ruckle	B. Ph	Grovepert, Franklin	“
Neil, Hannah	B. Ph	Columbus, “	“
Neil, Olive	B. Ph	“ “	“
Newton, Henry St. Clair	B. Ph	Newark, Licking	“
Norris, Walter Beebe	B. Sc	Columbus, Franklin	“
Peasley, Frederick Merrick	M. E	Flint, Delaware	“
Quinn, Edmund	B. A	Eaton, Preble	“
Rannells, Anna King	B. Ph	McArthur, Vinton	“
Rannells, David Archie	B. Sc	“	“
Raymund, Frank Milton	B. A	Akron, Summit	“
Rickey, Alla Berta	B. Ph	Columbus, Franklin	“
Sanz, George	B. A	Xenia, Greene	“
Savage, Frank W	C. E	Columbus, Franklin	“
Schaeffer, John Winans	B. Sc	Troy, Miami	“
Schlosser, Fred. Grant	C. E	Ironton, Lawrence	“
Sharp, Charles Cutler	C. E	Sugar Grove, Fairfield	“
Shedd, Carlos Butler	M. E	Columbus, Franklin	“
Sigerfoos, Charles Peter	B. Sc	Arcanum, Darke	“
Smith, Benjamin Grant	B. A	Alpha, Greene	“
Tarbox, Theodore Howard	C. E	Columbus, Franklin	“
Thompson, Fannie	B. Ph	“	“
Underwood, Guy	B. Ph	London, Madison	“
Wasson, William Alfred	E. M	Columbus, Franklin	“
Wayne, Bessie Palmer	B. Sc	Avondale, Hamilton	“
Welch, Clark Jay	C. E	Sandy Creek, New York.	
Westfall, Lafayette	B. Ph	Covington, Miami	county.
Wikoff, Charles Allen	B. Sc	Columbus, Franklin	county.
Wright, William Shrewsbury	M. E	Cincinnati, Hamilton	“

STUDENTS IN PHARMACY.

Beck, Herman George	Columbus, Franklin	county.
Bonner, Edwin Percy	London, Madison	"
Byers, Albert Gallatin	Columbus, Franklin	"
Cadwallader, Jonah Clifford	Morrow, Warren	"
Cherryholmes, Charles Campbell	Millersburg, Holmes	"
Earhart, Beatrice	Columbus, Franklin	"
Heath, Arthur Theodore	Cuyahoga Falls, Summit	"
Krieger Charles Henry	Columbus, Franklin	"
Weidner, George Frederick	Cuyahoga Falls, Summit	"
West, Henry Titus	Sylvania, Lucas	"

STUDENTS IN VETERINARY.

Bowers, Joseph F	Muncie, Ind.	
Daugherty, William A	Avondale, Coshocton	county.
Francis, Mark	Paddy's Run, Butler	"
Graham, James Wylde	Columbus, Franklin	"
Spooner, George Hausford, B. Ag Virginia Agricultural and Mechanical College.	Charlottesville, Va.	
Williams, Francis Andrew, B. A Otterbein University.	Westerville, Franklin county.	
Woodworth, Wendell Albert	S. New Lyme, Ashtabula county	

SHORT AGRICULTURAL COURSE.

Bell, Howard	Columbus, Franklin	county.
Biggin, Frederick John	Cortland, Trumbull	"
Bonner, Thomas Donahue	London, Madison	"
Coombes, Henry Elisha	Rex, Miami	"
Cowdery, Almon Beach	Cortland, Trumbull	"
Davis, Gager Calvin	" "	"
Ellis, Charles	Springboro, Warren	"
Harris, George Boler	Fountain City, Wayne	"
Jeffrey, John	Bethesda, Belmont	"
Linton, Edward	Columbus, Franklin	"
Mitchell, Henry Staley	London, Madison	"
Nichols, Clifford	Morristown, Belmont	"
Peterson, Russell	Austin, Ross	"
Temple, George Coppin	Piketon, Pike	"
Van Meter, Frank Reynolds	Horr's, Champaign	"

SECOND PREPARATORY CLASS.

Bancroft, Fanny Elizabeth	Columbus, Franklin	county.
Boyd, James Grant	Plain City, Madison	"
Braun, Walter	Columbus, Franklin	"
Bricker, Lorin H	Rich Hill, Knox	"
Clark, Emily	Columbus, Franklin	"
Cross, Edwin Lucius	Racine, Meigs	"
Doty, Harriet M	Columbus, Franklin	"
Drennen, Jefferson Nichol	Loydsville, Belmont	"
Esterly, Daniel Edward	Columbiana, Columbiana	"
Ewing, Charles Edwin	W. Baltimore, Montg'mry	"
Fox, Gertrude	Columbus, Franklin	"
Grimsley, Perry	"	"
Harrold, Ralph	South Charleston Clarke	"
Harsh, Leslie Albert	Com'cial Point, Pickaway	"
Hartman, Hudson Carmen	Columbiana, Columbiana	"
Hine, Jerome Pierce	Milan, Erie	"
Hostettler, Leonard Grant	Lovington, Illinois.	
Howard, Carl Newton	Westerville, Franklin	"
Hurst, Willis Tyler	Mansfield, Richland	"
Innis, Lew Wallace	Columbus, Franklin	"
Johnson, Willis Grant	New Albany, "	"

y, Montgomery	Columbus, Franklin	county.
ılin, Hugh Clarence	Belle Centre, Logan	“
h, Charles Walter	New Bremen, Auglaize	“
ey, Charles Bradfield	Chester Hill, Morgan	“
gan, Anna Belle	Columbus, Franklin	“
els, Mana Ruckle	Groveport, “	“
t, Charles Casper	Richfield, Summit	“
t, Emma Jane	“	“
ey, Murray Elliott	S. Charleston, Clarke	“
e, Lumina Cotton	Columbus, Franklin	“
ey, Joseph Chalmers	Oak Dale, Belmont	“
ie, George Alexander	Hudson, Summit	“
e, Victor Hugo	Sugar Grove, Fairfield	“
ing, Mary Ella	Louisville, Stark	“
Bertha	Columbus, Franklin	“
ıer, Charles Edward	Redfield, Perry	“
ı, Charles Gilbert	Columbus, Franklin	“
ı, Harvey Elihu	Chester Hill, Morgan	“
ıpson, Frank Ewell	New Carlisle, Clarke	“
ıpson, James Elmer	“ “	“
, Hiram Bryan	Talmadge, Summit	“
, Hubert Herrick	Zanesville, Muskingum	“
ɔrecht, Charles Christopher	Alliance, Stark	“
acre, Walter Lownes	Morrow, Warren	“
ameon, John Furrow	Piqua, Miami	“
ıans, Jesse Belle	Columbus, Franklin	“
ıans, Thomas Gran	“	“

FIRST PREPARATORY.

, Estella	Columbus, Franklin	county.
er, Edward Herbert	“	“
er, Charles Kyle	“	“
Louis Gillett	“	“
ocker, Louis	Amanda, Fairfield	“
, Robert Colfax	Plain City, Madison	“
ıerton, Bert Earle	Cedarville, Greene	“
bell, Marius Robinson	Cleveland, Cuyahoga	“
ns, Maud Mary	Columbus, Franklin	“
, Frank Askew	“	“
y, Carl Gregg	“	“
rt, Knott Crockett	Tiffin, Seneca	“
s, Jennie	Columbus, Franklin	“
er, Julius Henry Rex Paul	Loveland, Clermont	“
James Arthur	Bucyrus, Crawford	“
Frank Henry	Columbus, Franklin	“
tt, William Francis	“	“
ard, Loving Hapgood	Dunham, Washington	“
, Henderson J	Farmdale, Trumbull	“
er, Jacob Miller	West Liberty, Logan	“
ıer, Elijah Clyde	Loydsville, Belmont	“
ler, Guitner	Washingt'n C. H., Fayette	“
ins, Edmund Lorenzo	Amesville, Athens	“
ard, Ralph Newton	Columbus, Franklin	“
es, Daniel William	Poland, Mahoning	“
, William Henry, Jr	Columbus, Franklin	“
, George William	Dayton, Montgomery	“
son, Thomas Franklin	Columbus, Franklin	“
ston, Homer Clifton	Marion, Marion	“
, Aaron	Columbus, Franklin	“
r, Horace Charles	Springfield, Clarke	“
ıaw, Francis Stewart	Columbus, Franklin	“
wetter, Louis Frank	“	“
nan, Abraham	“	“
er, Edgar B	Felicity, Clermont	“
ı, Edwin Thurman	Columbus, Franklin	“

McCulloch, George Elmer	Bellefontaine, Logan	county
Mackey, Charles Livingston	Youngstown, Mahoning	"
Marsh, Henry	Columbus, Franklin	"
Mason, William	Sarahsville, Noble	"
Mellott, James Franklin	Bellaire, Belmont	"
Merritt, Charles Josiah	Selma, Clarke	"
Merry, Bion Erastus	Hartford, Trumbull	"
Mock, George Herbert	Columbus, Franklin	"
Mullay, John	"	"
Niswander, Albert	"	"
Norris, Jewett Lawrence	"	"
Oakes, Albert Elmore	Haverhill, Scioto	"
Oakes, Frank Edward	"	"
Potter, Joseph Drake	Columbus, Franklin	"
Rees, William Daniel	"	"
Rinner, Elijah Calvin	New Bedford, Coshocton	"
Sigerfoos, Edward	Arcanum, Darke	"
Smith, Carl Clyde	Chester Hill, Morgan	"
Smith, Henry Elwood	Loveland, Warren	"
Smith, Henrietta	Columbus, Franklin	"
Smith, Myron Alphonso	Bartlett, Washington	"
Smith, Roscoe Barnes	"	"
Spencer, John Alfred	Akron, Summit	"
Swigart, Charles Henry	Tiffin, Seneca	"
Thurman, Albert Lee	Columbus, Franklin	"
Turner, William Seward	"	"
Walter, Wilbert Thomas	"	"
Williams, Etta	Worthington, Franklin	"
Williamson, Glenn Sylvester	Columbus, "	"
Zeter, John	Sweet Wine, Hamilton	"

IRREGULAR PREPARATORY.

Ayers, Theodore Chandler	Morristown, Belmont	county.
Baker, Cornelius Brand	Brookville, Montgomery	"
Bishop, Hudson Dakota	Medina, Medina	"
Coe, Harry Proctor	Painesville, Lake	"
Elliott, William Ulysses	Zanesville, Muskingum	"
Fowler, Charles Evans	Chillicothe, Ross	"
Fox, Charles Pinckney	Springboro, Warren	"
Griffin, Theodore Lyman	Columbus, Franklin	"
Hamilton, Frederick B	Youngstown, Mahoning	"
Lamme, Benjamin Ganer	Medway, Clarke	"
Liewellen, Stephen Arnold	Ethel, Monroe	"
Mattinson, Thomas	South Charleston, Clarke	"
Packard, Frank Lucius	Columbus, Franklin	"
Peasley, Frank Howard	Flint, Delaware	"
Petre, Thomas Edwin	Celina, Mercer	"
Riggs, John David	Lawrence, Kansas.	
Rowland, Oliver Lincoln	Pleasantville, Fairfield	"
Shepherd, Jacob Lincoln	Oakland City, Indiana.	
Welch, John Francis	Ironton, Lawrence	"

SUMMARY.

Post Graduates		5
Under Graduates—		
Seniors	19	
Juniors	31	
Sophomores	36	
Freshmen	67	
		153
In Pharmacy	10	
In Veterinary	7	
In Short Agricultural Course	15	
		32
Preparatory—		
Second year	48	
First year	66	
Irregular	19	
		133
Total		323
By courses (in regular collegiate classes)—		
Bachelor of Arts		34
" Philosophy		30
" Science		29
" Agriculture		3
Civil Engineer		27
Mechanical Engineer		16
Mining Engineer		14
Total		153

PREPARATORY COURSE.

FIRST YEAR.

First Term.—Algebra, from Quadratics; English; Latin (Cæsar; Virgil begun), or German.

Second Term.—Algebra completed; United States History; Latin (Virgil), or German.

Third Term.—Botany; General History; Latin (Virgil), or German.

SECOND YEAR.

First Term.—Geometry; Physical Geography; Latin (Cicero), or German.

Second Term.—Geometry completed; Physics; Latin (Cicero), or German.

Third Term.—Plane Trigonometry; Physics; Latin (Sallust), or German.

Exercises in Rhetoric and English Composition one hour each week throughout the year.

Either Latin or German, as named above, is to be chosen for a two years course. Students looking forward to the degree of bachelor of arts, or to the degree of bachelor of philosophy, will take Latin; candidates for the degree of mining engineer or bachelor of agriculture will take German; and candidates for other degrees will take Latin or German.

GENERAL COURSES.

FOR THE DEGREE OF BACHELOR OF ARTS.

FRESHMAN YEAR.

First Term.—Latin, Livy, (3*); Physiology, (2); Greek, White's Lessons; Chemistry, Norton.

Second Term.—Latin, Livy, (3); Physiology, (2); Greek, Lessons and Anabasis, Book I; Chemistry, Norton.

Third Term.—Latin, Horace, Odes, (3); Physiology, (2); Greek, Anabasis, Books II and III; Chemistry, Lectures, (2); Mineralogy, Dana, (3).

SOPHOMORE YEAR.

First Term.—Latin, Tacitus, (4); English, Rhetoric, (2); Greek, Memorabilia, and Phædon, (3); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

Second Term.—Latin, Plautus, (4); English, Rhetoric, (2); Greek, Herodotus, Selections, (3); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

Third Term.—Latin, Cicero, (4); English Language, Whitney, (2); Greek, Homer, (3); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

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* The figures denote the number of hours a week. Where no figure is used, 5 is to be understood.

JUNIOR YEAR.

FIRST TERM.—Psychology, (3); Anglo-Saxon, March's Grammar and Reader, (2); Greek, Thucydides, (3); Latin, Juvenal, (3); Geology, Le Conte.

SECOND TERM.—Psychology, (3); Chaucer, (2); Greek, Euripides, (3); Latin, Cicero, (3); Geology, Le Conte.

THIRD TERM.—Metaphysics, (3); Shakespeare, (2); Greek, Demosthenes, (3); Latin, Quintilian, (3); Astronomy.

SENIOR YEAR.

FIRST TERM.—Ethics, (3); Logic, (2); Greek, Homer, (3); English Literature, (2); Political Economy, (2).

SECOND TERM.—Constitutional History, (3); Logic, (2); Greek, Sophocles, (3); English Literature, (2); Political Economy, (2).

THIRD TERM.—History of Philosophy, Schwegler, (3); Constitution of the United States, (2); Greek, Pindar, (3); English Literature, (2); Political Economy, (2).

Elective course in Science for the year.

FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

FRESHMAN YEAR.

FIRST TERM.—Latin, Livy, (3); Physiology, (2); French Grammar, Duffet; Chemistry, Norton.

SECOND TERM.—Latin, Cicero, (3); Physiology, (2); French, Masson's Classics; Chemistry, Norton.

THIRD TERM.—Latin, Horace, Odes, (3); Physiology, (2); French, Masson's Classics; Chemistry, Lectures, (2); Mineralogy, Dana, (3).

SOPHOMORE YEAR.

FIRST TERM.—Latin, Tacitus, (4); English, Rhetoric, (2); French, Moliere, (2); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

SECOND TERM.—Latin, Plautus, (4); English, Rhetoric, (2); French, Corneille, (2); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

THIRD TERM.—Latin, Cicero, (4); English, Language, Whitney, (2); French, Feuillet, (2); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

JUNIOR YEAR.

FIRST TERM.—Psychology, (3); Anglo-Saxon, March's Grammar and Reader, (2); History, (3); Latin, Juvenal, (3); Geology, Le Conte.

SECOND TERM.—Psychology, (3); Chaucer, (2); History, (3); Latin, Cicero, (3); Geology, Le Conte.

THIRD TERM.—Metaphysics, (3); Shakespeare, (2); History, (3); Latin, Quintilian, (3); Astronomy.

SENIOR YEAR.

FIRST TERM.—Ethics, (3); Logic, (2); History, (3); English Literature, (2); Political Economy, (2).

SECOND TERM.—Constitutional History, (3); Logic, (2); History, (3); English Literature, (2); Political Economy, (2).

THIRD TERM.—History of Philosophy, Schwegler, (3); Constitution of the United States, (2); History, (3); English Literature, (2); Political Economy, (2).

One elective in Science for the year.

FOR THE DEGREE OF BACHELOR OF SCIENCE.

FRESHMAN YEAR.

First Term.—Higher Algebra, (3); Physiology, (2); French, Duffet's Grammar; Chemistry, Norton.

Second Term.—Spherical and Analytical Trigonometry, (3); Physiology, (2); French, Masson's Classics; Chemistry, Norton.

Third Term.—Spherical and Analytical Trigonometry, (3); Physiology, (2); French, Masson's Classics; Chemistry, Lectures, (2); Mineralogy, (3).

SOPHOMORE YEAR.

First Term.—Rhetoric, (2); French, Moliere, (2); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

Second Term.—Rhetoric, (2); French, Feuillet, (2); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

Third Term.—Study of Words, Trench, (2); French, Racine, (2); Physics, Daniell, (3); Botany, Lectures, (2); Zoology, Lectures, (2).

One elective for the year in Pure Mathematics, Chemistry, Botany, or Anatomy and Physiology.

JUNIOR YEAR.

First Term.—Geology, Le Conte.

Second Term.—Geology, Le Conte.

Third Term.—Astronomy.

Two electives for the year from the sciences named as electives for the Sophomore year, with the addition of Physics and Comparative Anatomy.

SENIOR YEAR.

First Term.—Psychology, (3); Political Economy, (2).

Second Term.—Psychology, (3); Political Economy, (2).

Third Term.—Metaphysics, (3); Political Economy, (2).

Two electives for the year from the electives of the Junior year, with the addition of Geology; or one elective in Science and one in Ethics, Logic, History of Philosophy and Constitutional Law.

TECHNICAL COURSES.

FOR THE DEGREE OF CIVIL ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science.

SOPHOMORE YEAR.

First Term.—Land Surveying, (4); Projection Drawing, (3); Physics, (3); French, (2); Analytical Geometry.

Second Term.—Descriptive Geometry, (3); Lettering and Platting, (2); Physics, (3); French, (2); Calculus.

Third Term.—Railroad Surveying; Physics, (3); French, (2); Calculus.

JUNIOR YEAR.

FIRST TERM.—Astronomy and Geodesy, (3); Topographical Work, (2); Geology; Analytical Mechanics.

SECOND TERM.—Astronomy and Geodesy, (2); Stereotomy, (3); Geology; Economic Geology.

THIRD TERM.—Astronomy and Geodesy, (3); Shades, Shadows and Perspective, (3); Bridge Strains; Strength of Materials.

SENIOR YEAR.

FIRST TERM.—Civil Engineering; Physical Laboratory; Bridge Designing, Drawing and Specifications, (3); Political Economy, (2).

SECOND TERM.—Civil Engineering; Physical Laboratory; Plans, Specifications and Estimates, (3); Political Economy, (2).

THIRD TERM.—Sanitary Engineering; Physical Laboratory; Plans, Specifications and Estimates, (3); Political Economy, (2).

Two hours a week through the senior year for projet work.

FOR THE DEGREE OF MECHANICAL ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science.

SOPHOMORE YEAR.

FIRST TERM.—Mechanical Laboratory, (3); Projection Drawing, (3); Physics, (3); French, (2); Analytical Geometry.

SECOND TERM.—Mechanical Laboratory, (3); Descriptive Geometry, (3); Physics, (3); French, (2); Calculus.

THIRD TERM.—Mechanical Laboratory, (3); Shades, Shadows and Perspective, (3); Physics, (3); French, (2); Calculus.

JUNIOR YEAR.

FIRST TERM.—Mechanism, (2); Astronomy, (3); Geology; Analytical Mechanics.

SECOND TERM.—Mechanism; Geology; Technical Drawing.

THIRD TERM.—Designing and Drawing; Astronomy, (3); Mechanism, (2); Strength of Materials.

SENIOR YEAR.

FIRST TERM.—Thermo-Dynamics and Pneumatics; Physical Laboratory; Metallurgy.

SECOND TERM.—Prime Movers; Physical Laboratory; Metallurgy.

THIRD TERM—Mill-work; Physical Laboratory; Technical Drawing.

Two hours a week through the senior year for projet work.

FOR THE DEGREE OF MINING ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science.

SOPHOMORE YEAR.

FIRST TERM.—Projection Drawing, (3); Physics, (3); Analytical Geometry; Analytical Chemistry.

SECOND TERM.—Descriptive Geometry, (3); Physics, (3); Calculus; Analytical Chemistry.

THIRD TERM.—Shades, Shadows and Perspective, (3); Physics, (3); Calculus; Analytical Chemistry.

JUNIOR YEAR.

FIRST TERM.—Geology; Metallurgy; Analytical Chemistry.

SECOND TERM.—Geology; Metallurgy; Analytical Chemistry.

THIRD TERM.—Determinative Mineralogy; Metallurgy; Analytical Chemistry.

SENIOR YEAR.

FIRST TERM.—Surveying; Analytical Mechanics; Civil Engineering.

SECOND TERM.—Assaying; Economic Geology; Mining Engineering.

THIRD TERM.—Plans and Specifications; Strength of Materials; Coal Washing and Mechanical Treatment of Ores.

Two hours a week through the senior year given to projet work.

FOR THE DEGREE OF BACHELOR OF AGRICULTURE.

FRESHMAN YEAR.

FIRST TERM.—Higher Algebra, (3); Mechanical Laboratory, (3); Economic Botany; Chemistry.

SECOND TERM —Spherical and Analytical Trigonometry, (3); Mechanical Laboratory, (3); Physiological Botany; Chemistry.

THIRD TERM.—Spherical and Analytical Trigonometry, (3); Mechanical Laboratory, (3); Special Botany, Grasses, etc.; Chemistry, (2); Mineralogy, (3).

SOPHOMORE YEAR.

FIRST TERM.—Physics, (3); Zoology, (2); Horticulture (General Principles); Fruit Culture; Analytical Chemistry.

SECOND TERM.—Physics, (3); Zoology, (2); Horticulture (Vegetable Gardening and Seed Growing); Arboriculture and Practical Forestry; Analytical Chemistry.

THIRD TERM.—Physics, (3); Zoology, (2); Horticulture (Landscape Gardening, Practical Horticulture); Analytical Chemistry.

JUNIOR YEAR.

FIRST TERM.—Anatomy and Physiology; Geology; Agricultural Chemistry.

SECOND TERM.—Anatomy and Physiology; Geology; Agricultural Chemistry.

THIRD TERM.—Anatomy and Physiology; Geology (Economic); Agricultural Chemistry.

SENIOR YEAR.

FIRST TERM.—Soils, Manures, etc; Domestic Animals—Varieties, etc.; Diseases of Animals; Political Economy, (2).

SECOND TERM.—Farm Crops and Tillage; Breeding and Feeding Stock; Principles of Treatment; Political Economy, (2).

THIRD TERM.—Farm Improvement and Management; Dairying, Wool Growing, etc.; Particular Diseases; Political Economy, (2).

COURSE IN VETERINARY SCIENCE.

FIRST YEAR.

FIRST TERM.—Algebra; Geometry; Latin; German, or French.

SECOND TERM.—Algebra; Physics; Latin; German, or French.

THIRD TERM.—Botany; Physics; Latin; German, or French.

SECOND YEAR.

FIRST TERM.—Veterinary Anatomy; Chemistry; Physiological and Histological Laboratory.

SECOND TERM.—Veterinary Anatomy; Chemistry; Physiological and Histological Laboratory.

THIRD TERM.—Veterinary Anatomy; Chemistry, (2); Chemical Laboratory, (3); Physiological and Histological Laboratory.

THIRD YEAR.

FIRST TERM.—General Pathology and Therapeutics; Domestic Animals; Varieties, Adaptations, etc.; Principles of Surgery; Clinic.

SECOND TERM.—Special Pathology; Principles of Breeding; Materia Medica, (3); Pharmacy, (2); Clinic and Dissections.

THIRD TERM.—Special Pathology; Animal Hygiene; Materia Medica, (3); Pharmacy, (2); Clinic and Dissections.

FOURTH YEAR.

FIRST TERM.—Special Pathology; Surgical diseases and operations; Clinical Practice.

SECOND TERM.—Surgical diseases and operations; Medical Jurisprudence; Clinical Practice.

THIRD TERM.—Veterinary Obstetrics; Horse-shoeing and Inspection of Animal Products; Clinical Practice.

SHORT AGRICULTURAL COURSE.

FIRST YEAR.

First Term.—Mathematics or Physiology; Physical Geography; Agricultural Chemistry.

Second Term.—Mathematics, or Field Measurements and Farm Book-keeping; Physics, or History of the United States; Agricultural Chemistry.

Third Term.—Botany; Physics, or Elements of Political Science; Agricultural Chemistry.

SECOND YEAR.

First Term.—Agriculture; Veterinary Science; Botany; Mechanical Laboratory.

Second Term.—Agriculture; Veterinary Science; Horticulture; Mechanical Laboratory.

Third Term.—Agriculture; Veterinary Science; Horticulture; Mechanical Laboratory.

PROVISIONAL COURSE IN PHARMACY.

FIRST YEAR.

First Term.—Chemistry; Physiology, (2); Blow-piping, (3); Physics.

Second Term.—Chemistry; Physiology, (2); Pharmacy, (3); Chemical Laboratory.

Third Term.—Chemistry; Chemical Laboratory; Physiology, (2); Pharmacy, (3); Botany.

SECOND YEAR.

First Term.—Chemical Laboratory; Botany; Pharmacy; Principles of Medicine.

Second Term.—Chemical Laboratory; Botany; Pharmacy; Materia Medica.

Third Term.—Chemical Laboratory; Botany and Pharmacy, or Pharmacy, (5); Materia Medica, or Thesis.

DEPARTMENTS AND RANGE OF INSTRUCTION.

The range of instruction in the several subjects named in the preceding schedules is more particularly defined in the following statements of the work provided in the different departments of the university.

PHYSICS.

PROFESSOR THOMAS.

For this subject ample provision has been made in the equipment of the institution. It is safe to say that, in the opportunities afforded for thorough study in it, the university already surpasses most of the institutions of the country. Its laboratory is supplied with expensive and well-selected apparatus, designed not only for illustration, but also for original research in all the leading divisions of the science. Students are directed to its use in the way of original investigation as soon as they are properly prepared to undertake such work.

The instruction in physics comprises three grades of work.

In the preparatory course, the elements or general principles of physics are taught during the second and third terms. The work consists, in the main, of a daily recitation, for which lectures by the instructor are occasionally substituted. This course is strictly elementary in its character, and is fully illustrated by experiments throughout.

During the sophomore year all regular students have a recitation in physics on three days of each week. In this course a text-book is used, and the work consists of recitations and lectures combined. Application is here made of the student's knowledge of mathematics to the more advanced portions of physics. The formulæ representing the more important physical laws are developed, and experiment is made use of whenever necessary to the elucidation of the subject.

In addition to the above, students in civil or in mechanical engineering are required to give the equivalent of one daily recitation throughout one year to higher physics. Candidates for the degrees of bachelor of arts and bachelor of philosophy, may elect the same for one year, and candidates for the degree of bachelor of science for one, two, or three years. The work in this course consists largely of laboratory practice. Lectures are given regularly to the whole class upon subjects of general interest, such as making and reducing observations and their discussion, including the method of least squares. Text-books are used and lectures given upon special subjects of study. The attempt is made to render all students familiar with methods of original research, and as far as possible every student is required to do something in the way of original investigation. Before beginning this grade of work students should have completed the course in pure mathematics.

CHEMISTRY.

PROFESSOR NORTON.

All students who wish to obtain a degree are required to study chemistry for two and two-fifths terms. During this time generally chemistry, together with its most important applications to the arts, is taught by the use of text-books and lectures, illustrated by an ever-growing collection of the materials used in the manufactures, and by a very complete suite of experiments.

After the completion of this elementary course, those who desire to devote special attention to chemistry enter the analytical laboratory, where they can carry on their work for two years or more. This laboratory work is *required* only of students in mining. Any other student may enter the laboratory if his time and his strength permit.

The course in analytical chemistry provides full instruction in all departments of the science. In connection with the ordinary work of qualitative chemistry, the student is taught the use of the spectroscope, and of the blow-pipe in determinative mineralogy. He is also employed in making various compounds, and, if his time permit, studies exhaustively one or more of the elements and its important compounds.

The course in quantitative chemistry includes both the gravimetric and volumetric methods. The analyses are at first confined to those compounds whose structure is known, and afterwards extended to such bodies as the student may require in the special branch of the science to which he desires to devote himself. Opportunity is offered for the study of coals, ores, minerals, fertilizers, soils, or of the useful and the waste products in manufactures.

If the student desire, he will also be assisted in taking up in detail topics which relate to agriculture, to pharmacy, to medicine, and to other sciences, or to arts in which the principles of chemistry are applied. A full course of assaying is given in the mining laboratory, which is also open to the students of chemistry.

A summary of the course is given below.

REQUIRED OF ALL CANDIDATES FOR GRADUATION.

GENERAL CHEMISTRY—TWO AND TWO-FIFTHS TERMS.

Inorganic and organic chemistry, and the application of chemistry to the arts.

SPECIAL COURSE.

FIRST YEAR.

First Term. Qualitative Analysis: Exercises in Blow-pipe and Flame Reactions, Reactions in the dry way, Reactions of Single Bases and Acids.

Second Term. Qualitative Analysis continued: Determination of Mixtures, Blow-pipe Mineralogy, Preparation of Compounds.

Third Term. Quantitative Analysis, Stoichiometry, Review of General Chemistry throughout the year.

SECOND YEAR.

Quantitative Analysis: Special studies in Chemistry applied to Pharmacy, to Agriculture, to Manufactures, and to the Arts.

Text-Books.—Norton's Chemistry, Fowne's Chemistry, Beilstein's Manual, Galloway's Qualitative Chemistry, Will's Analytical Chemistry, Classen's Quantitative Chemistry, Fressenius's Quantitative Chemistry, Caldwell's Agricultural Chemistry.

Books of Reference.—Watt's Dictionary of Chemistry, Handwœrterbuch der Chemie, Gmelin's Hand-Book of Chemistry, Wagner's Chemical Technology, Graham-Otto's Chemie, Rose's Analytischen Chemie, Hoppe-Seyler and Gorup-Besanez's Physiologischen Chemie, Elderhorst's Determinative Mineralogy, Fresenius's Zeitschrift.

The state has recently appropriated $25,000 for the erection of a new building for the chemical and mining laboratories. This building is now completed. It is 160 feet long in front and 80 feet deep in the central portion. It is two stories high above the basement. The upper floor is devoted to the chemical department exclusively. The first floor is occupied by the mining department and the department of agricultural chemistry.

ZOOLOGY AND COMPARATIVE ANATOMY.

PROFESSOR TUTTLE.

The work of the department comprises the study of animal life alike from the anatomical and the physiological aspect. The department is now equipped with the necessary collections, preparations, and apparatus for thorough and efficient study of the organization of representatives of each of the leading groups of the animal kingdom, and particularly for work in the physiological anatomy of the higher animals, in histology, and in practical and experimental physiology.

Members of the freshman class (in all courses except the agricultural) receive during the first two terms of the year instruction in this department in the elements of anatomy and physiology. It is the object of this instruction to impart to these students such general knowledge of the structure and functions of their own bodies as will serve as a guide to their maintenance in a state of health and usefulness, as well as to direct their attention to the phenomena of life as manifested in an organism, which, while it is the most complex, is at the same time the most familiar of living things. Martin's *Human Body* (briefer edition) is used as a text-book, accompanied by lectures, and by anatomical, histological, and physiological demonstrations. The third term in the freshman year is devoted to a brief comparative study of the organization of the domestic animals and other closely allied forms, lectures and demonstrations forming the means of instruction This year's work forms a part of the second year of the shorter course in agriculture.

Zoology forms a portion of the work required in the sophomore year of all candidates for bachelor's degree. Instruction in this subject is given by means of lectures, accompanied by demonstrations and laboratory exercises. The object of this instruction is to impart to the student a clear conception of the animal kingdom as a whole, together with such practical familiarity with the members of its more important divisions as the time allotted will permit; to illustrate the methods and object of classification, and to give some insight into the principles which underlie all discussions of the phenomena of animal life. All the classes of the animal kingdom (as well as the orders of the more important classes) receive consideration, but the larger portion of the student's attention is directed to the classes and orders of the invertebrata, partly because they include those forms least likely to be otherwise made the subjects of study, and partly because of the larger amount of time given to the vertebrata in the advanced work of the department. The lectures upon zoology form a part of the instruction given in the second year of the shorter course in agriculture.

In addition to the prescribed work above indicated, candidates for the degree of bachelor of science have open to their election at the beginning of the sophomore and during subsequent years, advanced work in this department. The first year of this work, done chiefly in the dissecting-room and the laboratory, directed by weekly lectures and supplemented by collateral reading, is devoted mainly to the practical study of physiology with its necessary adjuncts of histology and physiological anatomy. It has for its object, to prepare the student for the intelligent study of the breeding, care, and treatment of the domestic animals, to lay the foundations for the study of medicine, both human and veterinary, and to give to the general student a clear conception of the intimate structures and activities of the living body. It is required of juniors in agriculture, and is elective for seniors in the courses in arts and philosophy.

But one other institution in the west offers to undergraduates facilities equal to those afforded here, in this work. A few words, therefore, concerning the equipment of the department will not be out of place.

The new dissecting-room is large, convenient and well-lighted, and is amply supplied with all necessary material and appliances. The work done in this place is confined to the practical study of the anatomy of the lower animals (the human body not being dissected here); students looking to the medical profession can, however, acquire an experience in anatomical manipulation and a knowledge of the normal appearance of organs that will prove of great future service.

The laboratory is excellently equipped for the study of histology and for practical histological work. It is abundantly provided with all necessary reagents for the hardening and preservation of the various tissues and organs of animals, and with injection apparatus, freezing and imbedding microtomes, etc., of the most recent and improved patterns. Each student is supplied with an excellent microscope (with powers ranging from sixty to four hundred diameters), and with the necessary materials and apparatus for the staining and mounting of preparations, and is required to familiarize himself with these processes by repeated practice, as well as to acquire a knowledge of the characteristics of tissues and the structure of organs by their direct and continued study. In the course of the year each student prepares for himself a series of mounted sections of permanent value.

The appliances of the laboratory for practical and experimental work in physiology have recently been greatly increased. In addition to a full supply of the chemical apparatus and reagents necessary for the examination of food-stuffs, digestion-products, the blood, the secretions, etc., there have been provided a number of the most important pieces of apparatus used for the demonstration and study of the physical and mechanical processes of the body. Among these may be mentioned appliances for the registration of phenomena by the graphic method, such as a revolving cylinder with Foucault's regulator; a polygraph for projection; an excellent pendulum myograph with the accompanying moist-chamber, electric signal, and chronograph, recording one hundred vibrations per second; Mosso's apparatus for the study of the variations of blood-pressure in the human body; recording manometers; sphygmograph and cardiograph (recording); sets of Marey's tambours, etc. Further additions in this direction will constantly be made.

The following hand-books are required by the student during the first year's work in this laboratory:

Practical Physiology (Foster and Langley).
Elements of Histology (Klein).
A Text-book of Physiology (Foster).

Students also have access to a collection of standard works, belonging to the department, and to the private library of the professor in charge.

The farther advanced work of this department, open to those who (in addition to the prescribed work in zoology of the sophomore year) have completed the first year's work above described, deals with the phenomena of animal life from the morphological rather than the physiological side, and is intended chiefly to meet the wants of those who expect, as teachers or in other capacities, to devote a portion at least of their lives to work in biological science. While the work of each student will be arranged in great measure in accordance with his individual aptitude and purposes, all will receive special training in microscopical manipulation and in the more elaborate processes of histological technique, and are expected to devote a large portion of their time to histological and embryological research. Lectures will be given each year upon one of the great divisions of the vertebrata, in which the organization, development and classification of its members are discussed; upon the comparative anatomy and histology of the apparatus of one or another of the principal animal functions; or upon some question in general morphology or philosophic zoology.

A tabular statement of the work is appended.

REQUIRED.

Freshman Year.

ANATOMY AND PHYSIOLOGY.

First Term—The Functions of Relation.
Second Term—The Functions of Organic Life.
Third Term—Vertebrate Anatomy.
Recitations (Martin's Human Body), Lectures and Demonstrations.

Sophomore Year.

ZOOLOGY.

First Term—Phases of Animal Life.
Second Term—The Natural Orders of Animals.
Third Term—Embryology and Classification.
Lectures, Demonstrations, and Laboratory Exercises.

ELECTIVE.

First Year.

Physiological Anatomy, Histology and Physiology of Mammals.
Laboratory work with Lectures.

Second Year.

Comparative Anatomy of Vertebrates.
Special Histological and Embryological Studies.
Laboratory work with Lectures.

GEOLOGY AND PALEONTOLOGY.

PROFESSOR ORTON.

The university is able to present unusual advantages for the study of geology. By act of the legislature it has been put in possession of all the collections made by the late state geological survey, and these collections have been supplemented by valuable additions of fossils and minerals from various sources. The state collection embraces a very complete representation of every geological formation shown in Ohio.

In the preparatory course one term is given to physical geography. In all of the college courses general geology is required in the first two terms of the junior year, and economic geology in the second term.

LeConte's *Elements of Geology* is made the basis of the instruction in the general course; economic geology is taught by lectures.

Students desiring to pursue geology further can elect it as one of their studies throughout the senior year. In this year, particular attention will be given to the geology and paleontology of Ohio, for the illustration of which subjects the museum affords ample materials. These subjects will be taught by lectures, by practical work in the museum, and as far as possible by field practice.

Text-books and Works of Reference—LeConte's Elements of Geology, Dana's Manual of Geology, Lyell's Principles of Geology, Nicholson's Manual of Paleontology, Geological Reports of Ohio and of other states.

AGRICULTURE.

PROFESSOR TOWNSHEND.

The university recognizes its obligations, imposed in the terms of the grant on which it is founded, to the great industrial interests of agriculture. This obligation it aims to meet in various ways. It fixes its standard of admission so that students may enter its classes from the better classes of common schools. It provides for thorough instruction in the branches of science on which agriculture depends. It has established a professorship of theoretical and applied agriculture. It has established a professorship of horticulture and botany. It has laid down a special course leading to the degree of bachelor of agriculture. It has instituted courses of lectures in the sciences relating to agriculture and in theoretical agriculture, to which the farmers of the state are invited without charge.

While it is believed that the varied and complex questions with which the farmer has to deal, justify and require, for their most successful treatment, the extended and thorough courses of study necessary for the degree of bachelor of agriculture, it is still recognized that comparatively few will return from a six years' course of study to the farm again, and, therefore, all possible advantages are offered to young men from the country who enter the institution for a shorter time. The work of the department of agriculture is shaped so as to give to this class as large a measure of service as possible for whatever time they are on college ground.

There are three years of work provided for the student in the department of agriculture. In the first year, soils are made a subject of examination, their geological relations and origin are explained, their composition is shown, and how it is determined; the special adaptations of soils to particular crops and modes of culture are shown, and how to increase or restore exhausted fertility; the management of pastures and meadows; the character and value of the different grasses, clovers and other forage plants; the culture of field crops, such as corn, wheat, oats, barley, rye, potatoes, etc.; also the value and application of animal manures, marl, gypsum, wood-ashes, lime, superphosphate, guano, and city sewerage.

The work named above occupies the first and second terms. During the remainder of the year the following subjects are treated: work of the farm and improvements; drainage, draining tools, and the manufacture of drain-tiles; irrigation, its value and methods; farm roads and how to make them; fences, material, construction, and cost; rural architecture, applied to the erection of farm houses, barns, stables, etc.; farm machinery.

The second year is mainly spent on the following topics: The natural history, description and adaptation of various domestic animals—horse-training, cattle feeding, dairy management, wool-growing, etc.

The work of the third year is spent on the general subject of veterinary science. The range of instruction can be learned from the topics named below: general principles, causes, symptoms, elements of disease; classification of diseases, principles of treatment, and remedial agents, particular diseases and operations. These are carefully studied, and, so far as opportunity can be obtained, diseases are treated, and operations made, under inspection of the class.

By reference to another page it will be seen that a shorter course in agriculture has been arranged for the benefit of students whose time is limited.

VETERINARY SCIENCE.

Within the last year a school of veterinary science has been organized, and full course of study adopted leading to a suitable degree.

HORTICULTURE AND BOTANY.

PROFESSOR LAZENBY.

The instruction in botany begins with the first year of the preparatory course, one term of which is devoted to structural and systematic botany. Further instruction is given in each of the following subjects: economic botany, vegetable physiology, vegetable histology, gramineæ, compositæ, and other special groups; ferns and fungi. Their arrangement, as regards the collegiate terms and years, is seen in the tabulated statement of the different courses of study.

The instruction is given by lectures in connection with laboratory practice, supplemented by field-work or class excursions.

The practical bearings of the science are made prominent in all the instruction given. In fungi, special study is made of those forms producing rust, mildew, blight, etc., which prove so destructive to cultivated plants.

In economic botany, besides a study of the special characteristics, geographical distribution, and distinctive properties of all the prominent natural orders, the history, uses, and importance of the different economic species, included in their orders, are fully considered.

The study of horticulture comprises lectures and recitations in the class-room, supplemented by observation and practice in the gardens and orchards. It is treated as an art based on science. The instruction continues throughout the year. The first term is devoted to a study of the general principles of horticulture and fruit culture. Under the first general subject the following are among the topics considered: horticulture, as a profession, its relation to science: location for horticultural work; implements, fertilizers, draining and irrigation, weeds and insects, management of help, marketing, etc.

The course in fruit culture embraces a study of the origin, history, methods of propagation, pruning and training, harvesting and marketing, insect enemies, diseases and varieties of both the small and large fruits.

In arboriculture and forestry, special attention is given to the influence of forests upon climate, the value of trees for timber and ornament, the best methods of culture, and a history of different varieties.

The instruction in vegetable culture includes kitchen and market gardening and seed-growing. Among the subjects considered are: location of the garden, laying out ground, draining, special preparation of soil, irrigation, management of composts, commercial fertilizers, implements, selection of seed, construction and managment of green-houses, hot-beds, cold-frames; special garden crops, history, cultivation and varieties of each; growing seed for home use and for market; the family kitchen garden, etc. In connection with the lectures, experiments, such as testing the vitaliy and germinating power of different seeds, are conducted in the laboratory.

The third term is devoted to practical floriculture and landscape gardening. The general subject is divided into the following topics: window-gardening, general management of house-plants, hanging-baskets, climbing vines, flowering bulbs, ferneries, Wardian cases, etc.; out-door flower-gardening, commercial flower-gardening, lawns, walks and drives, ornamental shrubs and trees. A well-stocked green-house, flower-beds in the borders, and a considerable collection of ornamental shrubs and trees on the college grounds afford valuable means of illustration in the study of the above subjects.

MATHEMATICS AND ASTRONOMY.

PROFESSOR COMSTOCK.

The course of instruction in this department is undergoing reorganization. As at present constituted instruction is given in the preparatory department in algebra; plane, solid and spherical geometry, and plane trigonometry. The text-books in algebra and geometry are (for the present year only) *Loomis's* treatises; in trigonometry, (*Chauvenet*).

In the university instruction is given in higher algebra (*Olney*); analytical and spherical trigonometry (*Chauvenet*); analytic geometry (*Bowser*), and calculus (*Taylor*). A course of instruction in descriptive astronomy is also given, in which the text-book of *Newcomb* and *Holden* is employed.

Students desiring to pursue further studies in mathematics or astronomy are invited to confer with the professor in charge of the department.

CIVIL ENGINEERING.

ASSISTANT PROFESSOR BROWN.

The order of studies in this department can be learned from the schedule which exhibits the course required for the degree of civil engineer.

Text-books—In parts of the course, works by Davies, Warren, Church, Gillespie, Mahan, Haupt, Worthen, and others, are used.

In addition to the use and study of the text-books, the students are taught and practiced in the use of various astronomical and engineering instruments—the level, the transit, the plane-table, the sextant, the globes. They have practical field-work throughout the year, except when the inclemency of the weather does not admit of it. The work consists in taking differences of level, running lines, measuring horizontal and vertical angles, determining the variation of the magnetic needle, finding the latitude of the pole-star and by meridian latitudes of the sun; in fine, every variety of appropriate work which can be executed, is regularly, systematically and thoroughly done.

MECHANICAL ENGINEERING.

PROFESSOR ROBINSON.

This course is intended for those who desire to prepare themselves either for the profession of mechanical engineering, for superintending the construction of machinery, or for managing machinery in manufacturing establishments. In it instruction in principles is combined with practice. The former is mostly given by lectures, while the latter is confined to the mechanical laboratory.

The course includes the following special studies, all of which must be passed before taking the degree.

MECHANISM AND DRAWING—ONE YEAR.

Principles of Mechanism.
Machine Designing and Drawing.
Machine Drawing.

PRIME MOVERS AND MACHINERY—ONE YEAR.

Thermodynamics and Transmission of Fluids.
Prime movers.
Machinery and Mill-work.
Besides the above there will be required for graduation:
Three terms of Elementary Laboratory Practice.
Two terms of advanced Laboratory Practice.
One term of Machine Construction and Laboratory.
One term of Strength of Materials and Hydraulics.

EXPLANATION OF THE COURSE.

In the principles of mechanism are studied the parts of machinery by pairs; or, elementary combinations of mechanism. In this the form and arrangement of the parts necessary for securing the desired modification of motion is sought.

In the machine designing the student takes up some problem in the shape of a particular machine for a special purpose. The forms, dimensions and arrangements of the parts are decided upon, and then a drawing is carefully made of the whole. Detail drawings to regulation size are then made, and finished in shade lines, as is done in the best shops. The quality of these drawings is sufficient for the requirements of photo-engravings for illustrations upon circulars.

In thermodynamics are studied the principles which form the groundwork of all heat engines.

In prime movers are studied all kinds of heat engines, such as steam engines, hot-air engines, etc., and also wind-wheels and water-wheels.

Mill-work and machinery takes up valve-gears, fly-wheels, governors, efficiency of parts of machines, strength of parts, etc.

The mechanical laboratory is intended for acquainting the student with the materials used in machine construction, and with the forms customary in machinery; to impart a degree of skill in the use of tools, and a knowledge of the operations and practices of shops. The student uses most of the ordinary tools of the machine shop, such as the vise, hand-lathe, drilling-machine, engine-lathe, milling and shaping-machine and planer; also, the forge and anvil, the iron cupola and brass furnace and pattern-makers' tools.

The first term's work consists of the actual use of tools in executing a set of forms chosen with a view to supplying the greatest possible amount of practical instruction for the time. This is combined with weekly lectures on tools and their use.

The second term carries the above practice to the fitting together of parts. This is combined with weekly exercises in designing and drawing of machine elements such as cranks, bearing-boxes, stud-ends, etc.

The third term is fully occupied in fitting parts carefully together, as in the joints of machinery, and in finishing the surfaces by scraping, polishing, burnishing, etc. This is in combination with a weekly exercise in the invention of simple machines for specific operations, such as bending wire staples, cutting wooden combs, etc.

The fourth term of mechanical laboratory practice is constructive. It is taken in connection with the principles of mechanism. In the latter, problems in mechanism are worked out, forms and dimensions assigned to the parts, and then these are executed in the laboratory, resulting in models of mechanical movements for the cabinet.

Projects will be assigned to the student, from time to time, on topics connected with his studies, requiring him to take indicator cards, test the efficiency of boilers, visiting manufacturing establishments, etc., and report. Such reports are neatly made out on the regulation papers of the department. These are taken, in part, for the examinations, and retained for the cabinet.

Text-Books and Works of Reference—Rankine's Steam Engine, and Machinery and Mill-work; Weisbach's Mechanics; Willis's Principles of Mechanism; Belanger's Cinematique; Zenner's Traite de la Chaleur; Neville's Hydraulics; Clausius and McCullough on Heat; Seller's Manual of Machine Tools; Shelley's Workshop; Unwin's Elements of Machine Design; Nicholson on Files and Filing.

MINING AND METALLURGY.

PROFESSOR LORD.

The course in mining engineering secures to the student careful instruction, with ample allowance of time, in three fundamental branches of the art—mining, preparation of the ore, and metallurgical treatment. These courses will comprise lectures, the study of text-books, preparation of maps, drawings, and sections, and visits to existing works, with careful reports upon them, and practice in estimates and designs.

For assaying there is a full equipment of furnaces and ores for the dry assay, and the wet methods are taught in the chemical laboratory.

An ample collection of minerals is provided, comprising all species with which the mining engineer should be familiar, and to this the students have constant and familiar access.

Crystallography is taught by the aid of a complete collection of large wood models, made especially for the department, and containing every common form.

Text-Books and Books of Reference.—Dana's Mineralogy, Egleston's Crystallographic Tables, Callon's Mining, Andre's Mining and Mining Machinery, Phillips's Metallurgy, Egleston's Metallurgical Tables, Rittenger's Aufbereitung, Gætschmann's Aufbereitung, Bodemann & Kerl's Assaying, Mitchell's Assaying, Von Cotta's Ore Deposits.

DRAWING AND DESIGN.

Mr. Bradford.

In mechanical drawing instruction is given in elementary projection drawing, and, to special students who may desire it, advanced mechanical drawing, such as architectural or other constructive drawing.

In free-hand drawing, instruction is given in elementary work. Outline drawing from the flat copy and from models, and in shading from models and casts, water-color painting from groups of objects, oil painting from the copy and groups in still-life, crayon portraits from copy or photograph, and modeling in clay, are also taught.

HISTORY, POLITICAL SCIENCE, AND ENGLISH.

Professor Knight.

History.—One term's work in United States history, and the same amount in general history is required of every pupil in the preparatory course.

For candidates for the degree of bachelor of philosophy there is an advanced course, extending through the junior and senior years. The arrangement of the work in this course is as follows:

Junior Year.

The Middle Ages, Hallam. Three hours per week for a half year.

Modern History of Europe to 1815. Three hours per week for a half year.

Senior Year.

History of the English Constitution. Three hours per week for a half year.

History of the XIX Century. Three hours per week for a half year.

The paramount aim of the instruction in this department is to teach the student how to study history, past and present, intelligently for himself. To this end, an effort is made from the first to prevent the pupil from looking upon any occurrence as an isolated one; he is encouraged to inquire into the relations, the environment of every event. In doing this, he is taking the first step towards that breadth of view, the attainment of which is the most difficult and yet the most necessary part of the study of history. Naturally, no method subserves so well this particular purpose as does the catechetical, and hence, it is, in the beginning, adopted. The habit of investigation thus formed leads the learner, later in his course, to the library; here he is familiarized with the use of books, sent to the sources of knowledge, so far as they are available, taught to weigh authorities, to sift evidence, and to form judgments of his own. To these conclusions he gives expression orally and in formal thesis.

POLITICAL SCIENCE.

The attention given to this field is still somewhat limited, but serves to acquaint the students with the principles of two capital divisions. The work is confined to the senior year. The elements of constitutional law receive attention two hours a week during one term, and political economy two hours a week throughout the year. While Laughlin's edition of Mill is used as the text-book in political economy, and while most of the doctrines which it upholds are adopted, the primary aim is to lay before the student the elementary priciples of the science. On all disputed points the views of leading writers on both sides are carefully examined.

In constitutional law, the object is to give the student a knowledge of the constitution of the United States as expounded by the ablest jurists and writers. To this end the course is preceded by a term's study of the constitutional history of the country, in which the chief points in connection with the formation and development of the constitution are laid before the student. In addition to this, arrangements have been made whereby it is expected that a short series of lectures on the elementary law will be delivered to the students by three or four of the ablest jurists in the state.

ENGLISH.

MR. WELSH.

One term's work in elementary rhetoric is required in the preparatory course.

In the courses of philosophy and arts, the work extends through three years, and is arranged as follows:

Sophomore Year.

First Term—Principles of Rhetoric, 2.
Second Term—Principles of Rhetoric, 2.
Third Term—Language and the Study of Language, Whitney, 2.

This English of the Sophomore year is likewise required in the course for the degree of Bachelor of Science.

Junior Year.

First Term—Anglo Saxon, March, 2.
Second Term—Chaucer (Clarendon Press edition, Prologue, etc.), 2.
Third Term—Shakespeare, 2.

Senior Year.

English Literature. Two hours per week through the year.

Rhetoric.—The first term's work is given to diction and construction, in general; that of the second term to the study of the special departments of composition, descriptions, narration and exposition. The work, from its nature, embraces three processes: the acquirement of general principles, the study of models, the writing of studies in the various departments.

Language.—Theories of the genesis of language are discussed, and its method of growth, as illustrated in the Anglo-Saxon and the early English, is unfolded.

Literature.—The study in this department has a three-fold purpose, linguistic, historic and æsthetic. It is based upon the critical reading of master-pieces in our language, from the best texts available. Supplementary to this is the study of minor authors and that of "the times," in so far as they contribute to the development of literary history. Last, is the study of authoritative critics, and the writing of critiques.

GERMAN AND FRENCH.

MISS WILLIAMS.

A two years' course in each of the two languages is provided for. In the beginning of either course the student attends mainly to grammatical doctrine and literal versions, and afterwards to the literary contents and characteristics of what he reads. Lectures upon the respective literatures run through the second year of the course.

GERMAN.

First Year.

First and Second Terms—Cook's Otto's German Grammar.
Third Term—Schiller's Der Neffe als Onkel—Composition.

Second Year.

First Term—Schiller's Maria Stuart; Composition.
Second Term—Lessing's Nathan der Weise; Literature.
Third Term—Goethe's Iphigenie; Literature.

FRENCH.

First Year.

First Term—Duffet; French Grammar and Exercises.
Second Term—Grammar continued; Masson's French Classics, vol. 5.
Third Term—French Classics continued.

Second Year.

First Term—Moliere; Le Misanthrope.
Second Term—Corneille; Cinna; Literature.
Third Term—Racine: Athalie; Composition.

LATIN.

PROFESSOR DERBY.

Latin is a required study for all regular students in the school of arts and philosophy.

The course of instruction extends through the preparatory course and the first three years of the college curriculum.

The exercises in this department occur daily in the preparatory years, four times a week in the sophomore year, and three times a week in the freshman and junior years.

The subjects are taught by means of text-books or lectures, and illustrated by books of reference, maps, and plans. Topics for investigation and an oral or written report of results are assigned to members of the advanced classes. By such exercises an attempt is made to familiarize the student with some of the sources of our knowledge of classical antiquity and with approved methods of studying them.

The main purpose in the earlier portion of the course is to give each student a ready command of the forms of the language, with such knowledge of its vocabulary and ordinary constructions as will enable him in the latter period of his study to pay attention chiefly to the literature, polity and life of the Roman people.

It is believed that, by this plan, a good measure of the intellectual discipline gained in linguistic study may be secured, together with that insight into the elements of ancient civilization which is indispensable to the proper understanding of the history, philosophy, politics, and law of modern times.

A knowledge of the literature and collective life of antiquity is of greater worth to most students than that familiarity with the minutiæ of grammar and linguistics which may be necessary for the teacher of languages. The range and order of instruction are shown in the tabular view which follows.

The requirements in Latin for admission to college embrace Latin Grammar and Composition, three books of Cæsar, five orations of Cicero, and five books of Virgil.

PREPARATORY COURSE.

First Year.

First Term—Latin Lessons; Allen & Greenough's Grammar.
Second Term—Lessons; Cæsar, *De Bello Gallico.*
Third Term—Cæsar; Roman Antiquities.

Second Year.

First Term—Cicero, *In Catilinam;* Latin Composition.
Second Term—Cicero; Virgil's Æneid begun; Latin Composition.
Third Term—Virgil; Latin Prosody.

COLLEGE COURSE.

Freshman Year.

First Term—Livy, Book XXI; Latin Composition.
Second Term—Livy; Latin Composition.
Third Term—Horace, *Odes;* Latin Composition.

Sophomore Year.

First Term—Tacitus, *History;* Roman History.
Second Term—Plautus, *Captivi;* Roman History.
Third Term—Cicero, *De Officiis;* Latin Etymology.

Junior Year.

First Term—Juvenal; Antiquities.
Second Term—Cicero's Letters; Roman Law.
Third Term—Quintilian; Latin Literature.

GREEK.

PROFESSOR SMITH.

The course of Greek comprises four years of college work, arranged as follows:

Freshman Year.

First Term—Goodwin's Grammar, and White's Lessons.
Second Term—Grammar and Lessons; Xenophon's *Anabasis*, Book I.
Third Term—*Anabasis*, Books II and III; Greek History.

Sophomore Year.

First Term—Xenophon's *Memorabilia;* Greek Prose Composition.
Second Term—Herodotus, Selections; Greek History.
Third Term—Homer, *Odyssey;* Greek Literature.

Junior Year.

First Term—Thucydides, Books I and II; Greek Literature.
Second Term—Euripides *Medea;* The Greek Drama.
Third Term—Demosthenes, *Olynthiacs;* The Attic Orators.

Senior Year.

First Term—Homer, *Iliad;* Epic Poetry.
Second Term—Sophocles, *Antigone;* Greek Antiquities.
Third Term—Pindar, *Selections;* Greek Etymology.

Instruction by means of text-books, lectures and works of reference throughout the entire course.

PHILOSOPHY.

PRESIDENT SCOTT.

The work in philosophy extends through the junior and senior years of the courses in arts and philosophy.

Junior.

First Term—Psychology, 3.
Second Term—Psychology, 3.
Third Term—Metaphysics, 3.

Senior.

First Term—Ethics, 3.
Deductive Logic, 2.
Second Term—Inductive Logic, 2.
Third Term—History of Philosophy, Schwegler, 3.

In the general course in science, psychology and metaphysics have three hours a week through the senior year, and the other subjects are elective.

During the first two terms of psychological study the subjects of consciousness, perception, memory, imagination, the several processes of thought, and the relations of mind and body are studied and discussed. The best authorities are consulted, and essays are written by the class. It is the constant aim to lead the student, as fast as possible, to dealing at first hand with the profound and interesting problems of mind. For this end the conversational method has been found most effective, and is chiefly relied on in teaching this as well as the other subjects of the department.

In the study of metaphysics, the nature, validity and source of the fundamental conceptions of human thought are investigated, and their relations to the various departments of knowledge receive careful attention.

The term in ethics is devoted to the study of Porter's Elements of Moral Science. The prevailing theories of morals are reviewed and an effort is made to form a critical estimate of their truth and value. The nature of conscience, the ideas of right and obligation, their sources and their authority, and the relation of ethics, on the one hand, to the intellectual, and on the other, to the practical life, are successively taken up and considered.

Logic is studied two hours a week in the first and second terms of the senior year; Fowler's Deductive and Inductive Logic is followed and copious examples are introduced. The diligent student may, even in the brief time allotted to the study, obtain a fair elementary knowledge of the subject, and thus open the way for an intelligent direction of his powers in all his intellectual pursuits.

The work in this field is completed by a term in the history of philosophy. With Schwegler as a text-book, the first names in the history of thought are studied, their relations developed, and the progress of opinion traced through its successive stages. The present state of psychology, ethics, and metaphysics, is reviewed in their relations to the past, and their significance and tendencies are investigated under the guidance of history.

MILITARY SCIENCE AND TACTICS.

LIEUTENANT BLOCKSOM.

The officer in charge of this department is a graduate of West Point, and has een detailed for this service by the general government. All students, except juniors, seniors and sophomores, and such others as can show reasonable ground for exemption, are required to take part in the drill. This exercise occupies about an hour five days in each week.

THE SCHOOL OF PHARMACY.

The sixty-sixth general assembly of Ohio passed a law March 20, 1884, establishing an Ohio board of pharmacy, and making it compulsory upon all persons desiring to engage, either as proprietor or assistant in the retail drug business, to appear before the board for examination touching their competency in compounding and dispensing the prescriptions of physicians. Those who pass satisfactory examinations are entitled to a certificate of pharmacist or assistant pharmacist, and are to be registered as such. The violation of this law is made a misdemeanor, and is punishable by a heavy fine.

Upon the passage of this law the matter was brought before the trustees of the university, and it was resolved by them to offer the privileges of the university to intending pharmacists, and to make such other provision for their instruction as seemed needful. The committee appointed to carry out the wishes of the trustees have thought it best to begin with a short course in pharmacy, which is intended to be supplemented by actual service in a retail drug store. The studies selected are those indicated by the requirements of the state board of pharmacy, but as yet the course is regarded as provisional only, and is to be supplanted by a full course, which will require at least three years of study.

The instruction in pharmacy proper has been placed in the hands of Mr. George B. Kauffman, well known as the senior member of the firm of Kauffman, Lattimer & Co., who brings to the work not only the knowledge and zeal required, but also the extensive facilities of his private laboratory. The other studies of the class in pharmacy will, it is hoped, find their proper place in connection with the regular classes of the university.

At present no degree is offered, since it is thought that sufficient inducement for hard study is presented by the certificate given by the Ohio board of pharmacy for evidence of qualification shown by a satisfactory examination. The degree of bachelor in pharmacy will probably be given upon completion of the full course.

THE SCHOOL OF VETERINARY SCIENCE.

Recognizing the importance of the live stock interest, and the great need of well educated veterinarians, the university has made provision for giving a thorough veterinary education to be followed by the customary degree.

The preliminary and practical veterinary branches will be taught by the following professors:

Physics, by Prof. B. F. Thomas, Ph. D.
Chemistry, by Prof. S. A. Norton, Ph. D., LL. D.
Botany, by Prof. W. R. Lazenby, Ag. B.
Comparative Anatomy and Physiology, by Prof. A. H. Tuttle, M. Sc.
Materia Medica, by Prof. H. A. Weber, Ph. D.
Principles and Practice of Veterinary Science, by Prof. N. S. Townshend, M. D.
Principles and Practice of Veterinary Surgery, by Prof. H. J. Detmers, V. S.

The complete course for a degree will require three years of attendance and study. For the benefit of young men who wish to enter this department, but are deficient in the necessary preliminary education, a year of preparatory study has been provided.

Veterinary studies of the first year will be physics, chemistry and botany.

Second year—Comparative anatomy and physiology, dissections and materia medica.

Third year—Principles and practice of veterinary science, principles and practice of veterinary surgery and daily clinic

AGRICULTURAL EXPERIMENT STATION.

PROFESSOR LAZENBY, *Director.*

The state has established an agricultural experiment station which is now located at the university. The station is sustained by appropriations from the state.

The experiments and investigations will be carried on, both in the field and in the laboratory, and will deal with the following great agricultural interests, viz.: (1) grain rising; (2) stock farming and dairy husbandry; (3) fruit and vegetable culture; (4) forestry.

The station is prepared to test varieties; to analyze and test fertilizers and manures; to examine seeds that are suspected of being unsound or adulterated; to identify and name weeds and other plants; to investigate and describe, when known, the habits of injurious and beneficial insects; and other work of a similar character that properly comes within its province.

STATE METEOROLOGICAL BUREAU.

PROFESSOR THOMAS, *Director.*

In 1882 the legislature established a state meteorological bureau, of which the professor of physics is the director. There is provided at the state university a full equipment of standard instruments for meteorological observations. Corresponding equipments are also provided for voluntary observers throughout the state. At the present time the bureau receives regular reports from about forty stations.

STATE FORESTRY BUREAU.

This bureau was established by the legislature within the past year, and located at the university. The board of directors has organized and begun its work. What has been done will be announced in the annual report of the board.

GENERAL INFORMATION.

FOUNDATION.

The Ohio State University is founded on the congressional land grant of July, 1862. By that act a large amount of the public land was turned over to the several states, the proceeds of the sales to be devoted to the better education of the industrial classes. The share of each state was proportioned to its representation in the national legislature, and thus six hundred and thirty thousand acres came into the possession of Ohio. This munificent gift was unfortunately pressed for sale upon a market temporarily overstocked, and the state realized only fifty-four cents to the acre. The total amount of the sales ($342,450), was, however put at interest, and when the institution was opened in September, 1873, the principal and interest together constituted a productive fund of something over $500,000, which has since been increased to a small extent, until an annual income of over $32,000 has been reached.

The legislature having passed an act to authorize the several counties of the state to raise money to secure the location of the university, an offer of $300,000 from Franklin county was accepted by the board of trustees, and the university was permanently located at Columbus. The money furnished by Franklin county has been mainly expended in the three following items: 1. The purchase of a valuable farm of three hundred and thirty acres, within the corporate limits of the city of Columbus. 2. The erection of a spacious and elegant college building, and two dormitories for students. 3. The equipment of the various departments of instruction in the university.

The total value of endowment and property at the present time exceeds $1,000,000.

The chief object of the institution is specifically defined by the act of congress, on which its endowment is based, to be "the liberal and practical education of the industrial classes in the several pursuits and professions of life," while the inclusion of other scientific and classical studies, and of military tactics, is expressly provided for.

The trustees and faculty have endeavored to direct the policy of the university in accordance with these excellent provisions. While the subjects commonly included in college studies are here taught with efficiency and thoroughness, special provision has been made for extensive and practical instruction in the various branches of natural science and their application. The leading industries of the state—agriculture, veterinary pharmacy. mechanics, mining, and engineering—have each a separate department and a special course of study provided, while the sciences that underlie these arts form special departments, and are taught by extended courses in well equipped laboratories.

LOCATION.

The university grounds and buildings are situated within the corporate limits of the city of Columbus, three miles north of the state house. Two lines of street railroads reach the grounds. New students and strangers wishing to visit the institution, on their arrival at the union depot, should take a white car going northward, at the north end of the tunnel on High street; or, if they wish to reach the dormitories, they should take a green-line car at the same place.

ADMISSION.

I. To the Preparatory Department.

For admission to the preparatory department of the university, students must pass a satisfactory examination in the branches taught in the common schools, viz.: orthography, writing, grammar, geography, arithmetic, and algebra, through simple equations. In September, 1886, and thereafter one year of Latin will be required for admission to the preparatory courses in arts and philosophy. For admission to the short agricultural course, algebra is not required; and candidates over twenty-one years of age will be admitted to this course without examination.

The attention of those proposing to enter the university is especially directed to the terms above given. A competent knowledge of the common school branches is required. The university does not undertake to do the work which the common schools are able and willing to do, viz., that of grounding the student in the elements of an English education. He must bring with him a fair measure of the training which these schools are prepared to give. If it be asked what is a competent knowledge of these branches, it may be answered that the candidate should certainly have knowledge enough of them to entitle him to a teacher's certificate from a county board of examiners.

Graduates of the high schools of the state are admitted to the preparatory department without examination. Applicants having a teacher's certificate of twelve months are also admitted without examination, except in algebra when this study is not included in the certificate.

Entrance examinations for 1886 will be held at the university, June 21 and 22, and September 14 and 15, 1886.

II. To the College Classes.

For admission to the freshman class of any course, the student must sustain examination in the studies of the preparatory department that lead to this course. The preparatory department, as now constituted, agrees very well with the course of instruction in the better grade of high schools of the state.

Graduates of high schools of this state, in cities having a population of 5,000 or more, by the last census, and of such other high schools and academies of the state as give satisfactory evidence to the faculty of the efficiency of their courses of study, will, on presenting their diplomas, be admitted to the freshman class, in any course of study for which their previous high school work shall have fitted them.

Students who are not able to take a full course, but desire to attend a limited time for a definite object, may, with the approval of the faculty, pursue a special course.

Students are admitted to advanced standing in any of the courses, on sustaining examination in the work required in the university for such standing.

Students entering from other colleges are required to bring certificates of honorable dismission.

The university is open to students of both sexes, but there are no buildings provided for the residence of young ladies on the university grounds. Boarding places in respectable families are secured for such young ladies as enter the institution, but the faculty is not so situated that it can exercise supervision over their conduct outside of college hours. Parents who place their daughters in the university should be well satisfied as to their discretion, or else should leave them under the care and control of the family with which they board.

REGISTRATION.

Students are required to register on the first day of each term. On registration the student will receive a card, which he must present to the committee of the school in which he belongs, in order to receive his class card. Students who fail to register on the day appointed must give a satisfactory reason for their delay, otherwise all absences will be charged against them from the beginning of the term.

EXPENSES.

I. COLLEGE DUES. *There is no charge for tuition in any department of the University;* but a charge of $5.00 a term, or $15.00 a year, is made against all students, under the head of incidental expenses, and advanced students in chemistry, agricultural chemistry, physics and physiology are required to pay fees to cover, in part, the cost of materials consumed, and the deterioration of the expensive instruments employed. The fee in the chemical laboratory is $10.00 per term, in the physical laboratory $7.00 per term, and in the physiological laboratory and that of agricultural chemistry, $8.00 per term. These dues are required at the opening of each term.

The payment of term bills is required of all students by the second Wednesday of each term, as the condition of remaining in the university.

II. BOARD. There are two dormitories on the grounds, provided for the use of students. The smaller of these affords unfurnished rooms, *rent free*, to such students as desire to board themselves, and thus to reduce their expenses to a minimum. Twenty students can be accommodated in the building, two students being assigned to each room. The expense of living in this way falls below $2.00 per week.

The larger dormitory can accommodate more than sixty students. It is, for the present, turned over to the university club, *rent free*. Board, furnished room, fuel, light, and washing are, at present prices, supplied for less than $3.25 per week. New students will not, however, be admitted to the club without special recommendation.

Boarding-clubs may also be organized in the neighborhood of the university, by students, in which expenses can be kept at $3.00 per week, at present prices.

Board, with furnished rooms, can be obtained in private families within convenient distances of the university, at rates varying from $3.50 to $5.00 per week. The ruling rate may be taken as $4.00 or $4.50 per week for young men, and $5.00 for young ladies.

A uniform has been adopted, with which all members of the military organization are required to provide themselves. The cost of the uniform is about $23.00.

The expense of a college year will include the following items, viz.:

College dues	$15 00		$15 00
Board, rooms, etc., at $3.00 per week	114 00	at $4.50	171 00
Total	$129 00		$186 00

This estimate provides for light and fuel, but does not include text-books or charges for laboratory supplies. Students boarding themselves can reduce the lowest of these estimates at least $30.00—making a total of less than $100.

EMPLOYMENT.

There is a large amount of work on the university farm which can be performed to advantage by students and for which they are paid at current rates for such labor. A number of students defray all their college expenses in this way. In the assigning of work preference is given to students in the department of agriculture, and to those who are ready to devote a certain number of hours each day to the task required. *The university does not guarantee work to all applicants.*

CLASSIFICATION OF STUDENTS.

The undergraduate students of the university are classified as follows:

(1.) Regular students.
(2.) Special students.
(3.) Regular preparatory students.
(4.) Irregular preparatory students.

The first division includes the four college classes; the second includes students that have attained college rank, by completing the preparatory course or its equivalent, but are now pursuing selected studies; the third includes students that are pursuing the regular preparatory course; and the fourth includes all students who do not belong to either of the first three.

The various deparments of the university have been classified in four schools, designated as follows:

THE SCHOOL OF AGRICULTURE, including those studies which enter into the course leading to the degree of Bachelor of Agriculture.

THE SCHOOL OF ARTS AND PHILOSOPHY, including those studies which enter into the courses leading to the degrees of Bachelor of Arts and Bachelor of Philosophy.

THE SCHOOL OF SCIENCE, including those studies which enter into the course leading to the degree of Bachelor of Science.

THE SCHOOL OF ENGINEERING, including those studies which enter into the courses leading to the degrees of Civil Engineering, Mechanical Engineer, and Mining Engineer.

Each school is under the direction of a standing committee of the faculty, having power to act in all matters pertaining to the studies of students in such school, and in matters of minor discipline.

Every undergraduate student enters one of the above schools. In case of irregularity, he is assigned to that one in which the majority of his studies are found.

All students in each school are regarded as belonging to one of two groups; first, those whose purpose it is to enter upon one of the regular courses of study, with the expectation of taking its degree; second, those who come to the university for the purpose of pursuing some special study or line of work, and who do not expect to take a degree.

The courses of study leading to the various degrees having been arranged by the faculty in the order which they believe to be the best adapted to the general requirements of students, *all who do not belong to the second of the groups indicated*, will be required to enter upon the regular work of the college classes to which they belong, or in case of present irregularity to remove such irregularity as speedily as practicable in the manner prescribed by the committee of the school in which they are classed, and no such student will be allowed to take more or other than his regular studies without presenting a request with reason therefor to his committee, and receiving its consent. Such consent may be revoked at any time when it may seem advisable to do so.

Students belonging to the second group, viz.: those coming to the university for a limited time with the definite purpose of pursuing some special line of work, will in each case enter the school in which their proposed work is chiefly included, and shall lay before the committee a statement of the end in view, the studies proposed f r the accomplishment of that end, and the probable period of residence.

Students pursuing particular lines of work shall, if they have attained college standing, be published as special students; if otherwise, as irregular preparatory.

While it will be the purpose of each committee, in accordance with the well-established policy of the university, to allow to such students full freedom in the selection of the branches which they desire to pursue, subject only to the necessary limitations that they are prepared to take up the branches they select and that such branches are in accordance with the end proposed, it is also their intention to hold these students as regularly to the performance of their accepted schemes of work as they do the members of the first group to their prescribed courses of study; and they will refuse admission to this group to all of whose definiteness of purpose or fitness to undertake the work proposed they fail to receive satisfactory evidence.

ELECTIVES.

It will be observed that at the beginning of the sophomore year of the bachelor of science course an advanced course in science is to be selected from such branches as have been already studied in their elementary forms in either the freshman year or in the preparatory course. The choice at this time is therefore confined to the four following, viz.: botany, chemistry, mathematics, and anatomy and physiology.

At the beginning of the junior year the list of electives is extended by the addition of physics and vertebrate anatomy and physiology, and at the beginning of the senior year by the addition of paleontology, and also of philosophy and ethics.

In the senior year of the courses for the degrees of bachelor of arts and bachelor of philosophy, there is also an election. The student can choose from any of the sciences, the elements of which have been previously given.

EXAMINATIONS.

1. The standing of the students shall be reported at the end of each term as "passed with merit," "passed," "conditioned," or "failed;" such standing to be determined by examination, written wherever possible.

2. Students conditioned at the close of any study shall be required to pass an examination in that study during the following term, at such time as may be designated by the instructor in whose class the condition occurs; otherwise such condition shall be entered as a failure. When a condition is incurred during the progress of any study, the instructor may, at his option, require an examination during the following term (in which case proper notice must be given at the time the condition is announced), or, at the option of the instructor, the condition may be allowed to stand until the close of the following term, when if the student passes on the work of the current term, the condition shall be removed. If he does not succeed in passing, the work of both terms shall be counted as failures.

3. The regular work of each laboratory is regarded as the equivalent of five class-room exercises per week. Two consecutive hours daily in the art department is also so regarded.

4. No special or irregular student is allowed to take less than fifteen or more than eighteen hours per week of class-room work, or its equivalent, and no student conditioned in any study will be permitted to take more than the regular work of his class the following term.

5. At the close of each term students must pass in examinations in studies representing at least ten hours per week, in order to retain their connection with the university.

6 Students conditioned in studies representing ten hours per week, must pass satisfactory examinations in at least one-half of those studies before regaining their standing in college.

7. Students failing in examinations representing ten hours per week, forfeit their place in college thereby.

8. Students who fail in the term examinations, or in an examination for conditions, are required to take the study or studies in which they fail, on their occurrence in the following year, except when excused by the faculty.

9. Students failing on a re-examination for a condition, are dropped from that class, if a continuous one.

10. Absence from any examination is construed as a failure therein.

11. Students in any three-term class who fail to attain the grade "passed" at the end of more than one term, shall be required to repeat the work of the whole year, unless excused by the professor in charge; and the students in any two-term class who are reported as "failed" at

the end of the second term, may be required by the professor in charge to repeat both terms' work.

ABSENCES AND DEMERITS.

1. Four demerit marks shall be recorded against a student for every unexcused absence from a class or from drill; two for every unexcused failure in recitation or in drill; and one for every unexcused tardiness; and other offenses shall be rated as the faculty shall from time to time determine.
2. When any student has received ten demerit marks he shall be admonished by the president.
3. When any student shall have received twenty demerit marks notice thereof shall be sent to his parent or guardian.
4. When any student has received forty demerit marks his connection with the university is thereby forfeited.
5. No account of demerits shall be continued longer than the close of the college year.

THE LIBRARY.

The library is still quite limited, but contains many valuable books, especially reference books and books in science, history and philosophy. It is open daily and is in almost constant use by the students for reading and reference. The room is also supplied with leading periodicals, care being taken to select such as will afford to the student the freshest and ablest discussions on the subjects of current interest.

The legislature has recently appropriated $7,000 for the removal and increase of the library, by which this important adjunct of the university has been greatly improved. Additions have been made to the various departments of science, history, literature, and philosophy, and the whole has been placed in a large and well-lighted room especially fitted up to receive it.

THE LABORATORIES.

Much of the work in science is performed in laboratories by the students themselves. To promote this, which is now universally recognized as the true method of teaching science, the trustees and faculty have been at great expense and pains to provide the best possible facilities.

The chemical, physical and mechanical laboratories are open on Monday and Tuesday afternoons, and the metallurgical, and physiological laboratories are open Thursday and Friday afternoons.

RHETORICAL TRAINING.

The students in the advanced college classes meet weekly for rhetorical exercises. These exercises consist of essays and orations which have been criticised in manuscript by the professor in charge. They are additional to the class-room work in the study of rhetoric, which extends through the sophomore year of all the general courses.

RELIGIOUS SERVICES.

Daily prayers are held in the university lecture-room, at which the attendance of all students is required, except when excused for special reasons. The services are usually conducted by the president, but sometimes by other members of the faculty and by visiting clergymen of various denominations.

LITERARY SOCIETIES.

The Alcyone and Horton Literary Societies have commodious and well-furnished halls in the main building. A hall has also been recently assigned to the Browning Literary Society, which is composed of young ladies. All these societies meet weekly. The membership is large, and the work is vigorous and effective, affording to the student a very desirable training in composition, public speaking, and parliamentary order. Each society holds a public anniversary, and the Alcyone and the Horton hold an annual contest.

SCIENTIFIC ASSOCIATIONS.

The Kirtland Natural History Society is composed principally of the students in the agricultural department. The object of the society is "to develop a faculty of observation and cultivate the powers of original research; to form clear and accurate habits of thought and expression by reading, writing, and discussion; to make a systematic study of the sciences most nearly related to agriculture; and to assist in promoting the agricultural department of the university by collecting material illustrative of its various branches."

The Engineering Association is composed of students in the engineering courses, and its object is the investigation and discussion of topics in mechanical, mining, and civil engineering.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

A branch of this association has recently been organized, and has rented and furnished a pleasant room in which its meetings are held.

OHIO STATE UNIVERSITY ALUMNI.

OFFICERS.

President—H. L. Wilgus	Cambridge, Ohio.
Vice-President—H. F. Snyder	Oxford, Ohio.
Secretary—Fred. Keffer	Columbus, Ohio.
Treasurer—J. H. McCormick	"

COLLEGE COMMITTEE.

Harwood R. Pool	5 years.
J. P. Jones	4 "
C. C. Howard	3 "
W. A. Dun	2 "
Annie W. Sabine	1 "

EXECUTIVE COMMITTEE.

Consists of officers of association.

OHIO STATE UNIVERSITY ALUMNI—NOVEMBER, 1885.

Class.	Name.	Degree.	Residence.	Occupation.
1878	Jno. F. McFadden	A. B	Columbus, Ohio	Attorney-at-law—Justice of Peace.
	C. H. Dietrich	B. S	Hopkinsville, Kentucky	Teacher.
	W. A. Dun	B. S	Cincinnati, Ohio	Physician.
	Ferdinand Howald	B. S	Capertown, West Virginia	Mining Engineer.
	C. C. Howard	B. S	Columbus, Ohio	Analytical Chemist.
	Arthur B. Townshend	B. S	New York, N. Y	Physician.
1879	W. F. Noble	A. B	Tiffin, Ohio	Attorney-at-law.
	J. S. Humphrey	B. S	Findlay, Ohio	Surveyor's office.
	A. B. McMackin	B. S	Fairfield, Iowa	Clergyman.
	M. Frank Morrison	B. S	Denver, Colorado	Mrs. Prof. S. H. Short.
	Henry Snyder	B. S	Oxford, Ohio	Professor Physics, Miami University.
	R. S. Towne	B. S., E M	El Paso, Texas	Mining Engineer.
1880	E. E. Corwin	A. B	Columbus, Ohio	Attorney-at-law.
	Arthur Cunningham	A. B	"	Book-keeper.
	H. D. Gregory	E. M	"	Civil Engineer and Bridge Builder.
	J. P. Jones	A. B	"	Attorney-at-law.
	J. H. McCormick	B. S	"	Draughtsman.
	F. Z. Smith	A. B	"	Attorney-at-law.
	Alice M. Townshend	A. B	Bement, Illinois	Mrs. Chas. M. Wing—stock farm.
	Jno. C. Ward	A. B	Willoughby, Ohio	Formerly Sup't public schools, now Clerk of Lake county, Ohio.
	S. H. Short	B. S	Denver, Colorado	Electrical Engineer, formerly Prof. Physics and V. P., University of Colorado.
1881	Harwood R. Pool	B. Ph	New York, N. Y	Attorney-at-law.
	W. K. Cherryholmes	B. S	Cleveland, Ohio	Physician.
	K. D. Wood	A. B	Columbus, Ohio	Book keeper.
	Josephine M. Bates	B. Ph	Irwin, Ohio	Teacher.
	David O'Brine	B.S., E.M. M. D	Columbus, Ohio	Assistant in Chemistry, O. S. U.
	C. M. Lewis	A. B	"	Reporter "Columbus Evening Dispatch."

OHIO STATE UNIVERSITY ALUMNI—NOVEMBER, 1885—Continued.

Class.	Name.	Degree.	Residence.	Occupation.
1882	W. W. Donham	B. S	Forgy, Ohio	Superintendent township schools.
	O. L. Fassig	B. S	Washington, D. C	U. S. Signal Service.
	F. W. Fay	A. B	Buffalo, New York	Architect.
	Sioux Glover	B. S	Pennsylvania	Mrs. Horton.
	Frederic Keffer	E. M	Columbus, Ohio	Electrical Engineer.
	Irvin Linson	A. B	London, Ohio	Teacher district school.
	Jno. A. McDowell	B. S	Columbus, Ohio	Electrical Engineer.
	Cora Warner	B. Ph	"	Resident.
	H. L. Wilgus	B. S	Cambridge	Clerk C. & M. R'y office.
1883	Fremont Ackerman	C. E	Glen Haven, Wisconsin	R. R. engineer corps.
	J. N. Bradford	Mech. Eng	Columbus, Ohio	Teacher of Drawing, O. S. U.
	J. J. Dun	M. E	"	Civil Engineer and Bridge Builder.
	J. H. Galbraith	B. Ph	"	Editor on "Columbus Daily Times."
	C. E. Higbee	B. Sc	"	Grocer—"Carmack & Higbee."
	A. B. Howard	B. Ph	Gambier, Ohio	Theological Student—Kenyon.
	G. W. Knopp	B. Sc	Washington, D. C	U. S. Signal Service.
	C. F. Marvin	Mech. Eng	Washington, D. C	Ass't Prof. U. S. Signal Service.
	C. C. Miller	A. B	Eaton, Ohio	Superintendent public schools.
	F. W. Sperr	M. E	Jefferson, Ohio	Mining Engineer.
	E. M. Van Harlingen	B. Sc	New Orleans, Louisiana	U. S. Signal Service.
1884	Eli O. Ackerman	C. E	Columbus, Ohio	Teacher.
	J. T. Anderson	A. B	Texas	Lieut. U. S. army.
	Helena W. Chamberlain	A. B	New York, N. Y	Resident.
	Geo. W. Dun	B. Sc	Columbus, Ohio	Clerk county treasurer's office.
	J. R. Lovejoy	B. Sc	"	Special Student, O. S. U.
	C. V. Mead	B. Ph	Jefferson, Ohio	Law Student—Clerk Probate Judge's office.
	Edward Orton, Jr	E. M	Buchtel, Ohio	Mining Engineer.
	Annie W. Sabine	A. B	Columbus	Special Student, O. S. U.
	E. E. Sparks	A. B	Portsmouth, Ohio	Teacher—high school.

OHIO STATE UNIVERSITY ALUMNI—NOVEMBER, 1885—Continued.

	Name.	Degree.	Residence.	Occupation.
1884	J. B. Wikoff	B. Ph	Columbus, Ohio	Law Student.
	Geo. L. Morton	Mech. Eng	Cleveland, Ohio	Draughtsman and Machinist.
	C. W. De Lamater	A. B	Cincinnati, Ohio	Senior year, Cincinnati Law School.
1885	W. P. Bentley	B. S	Xenia, Ohio	Secretary Y. M. C. A.
	C. C. Greene	B. S	Middleport, Ohio	Teacher.
	W. H. Harrison	C. E	Miami Crossing, Ohio	Farming.
	Ellis Lovejoy	E. M	Columbus, Ohio	Geological Survey of Ohio.
	C. A. Marple	B. S	"	Ass't Secretary Meteorological Bureau.
	W. R. Malone	A. B	Cambridge, Ohio	Principal of high school.
	M. N. Mix	B. Ph	Mansfield, Ohio	Reporter Mansfield Times.
	W. L. Peters	M. E	Columbus, Ohio	Columbus Buggy Co.
	C. V. Pleukharp	M. E	"	Traveling agent for Jas. Pleukharp & Co.
	W. J. Root	E. M	"	Analytical Chemist at O. S. U.
	E. L. T. Schaub	M. E	"	Machinist—Piqua shops.
	C. F. Scott	A. B	"	Special Student—O. S. U.
	Mary O. Scott	A. B	"	" "
	F. A. Taylor	A. B	London, Ohio	Teacher—township schools.
	Geo. R. Twiss	M. E	Youngstown, Ohio	Teacher.
	Philo C. Smith	B. S	Canton, Ohio	Farmer and Teacher.

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SIXTEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

OHIO STATE UNIVERSITY,

TO THE

GOVERNOR OF THE STATE OF OHIO,

FOR THE YEAR 1886.

COLUMBUS, O.:
THE WESTBOTE COMPANY, STATE PRINTERS.
1887.

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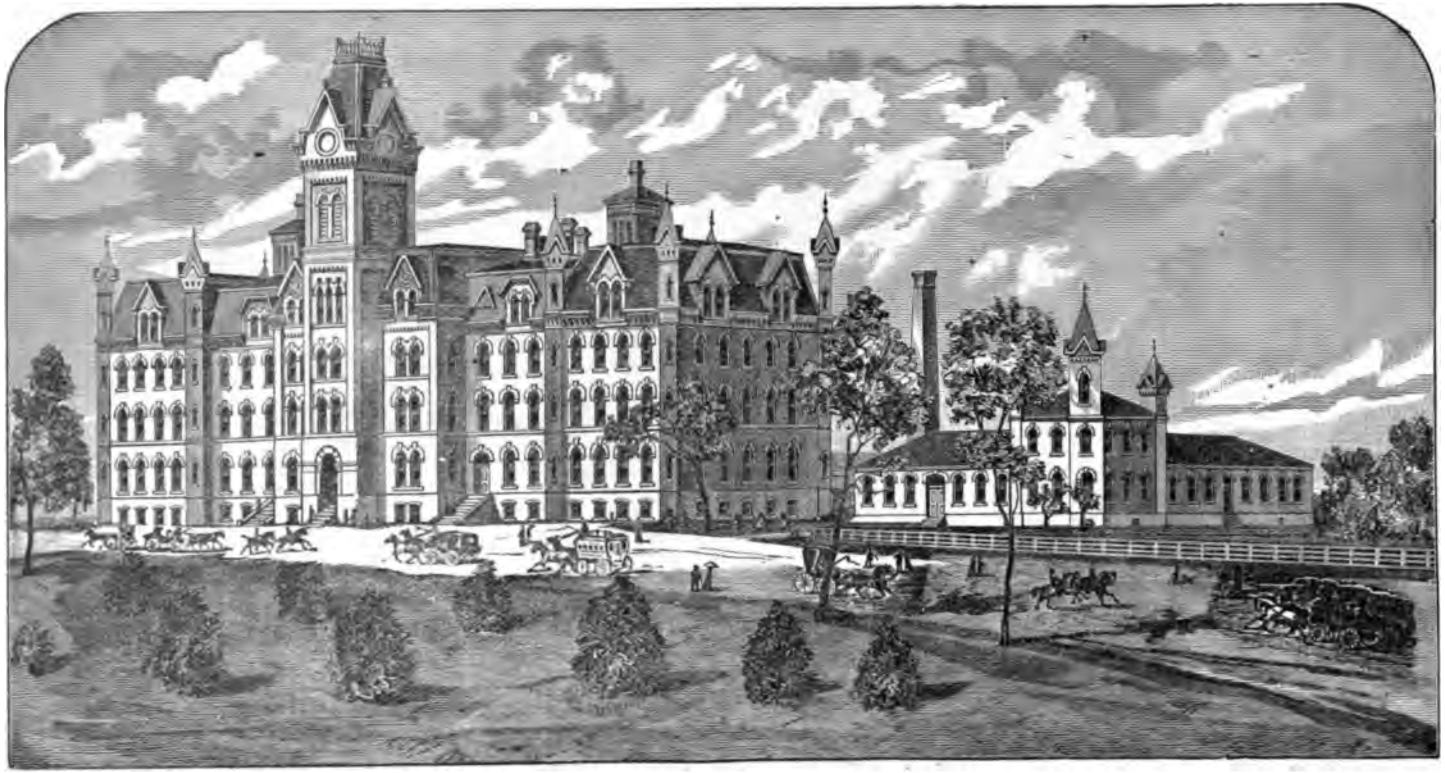

OHIO STATE UNIVERSITY.

SIXTEENTH ANNUAL REPORT

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BOARD OF TRUSTEES.

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LUCIUS B. WING	Newark.
THOMAS J. GODFREY	Celina.
THOMAS A. COWGILL	Kennard.
PETER H. CLARK	Cincinnati.
HENRY J. BOOTH	Columbus.
HENRY B. PERKINS	Warren.

OFFICERS OF THE BOARD:

LUCIUS B. WING	*President.*
THOS. A. COWGILL	*Vice-President.*
ALEXIS COPE	*Secretary.*
FRED. W. PRENTISS	*Treasurer.*

EXECUTIVE COMMITTEE:

H. J. BOOTH, T. A. COWGILL. PETER H. CLARK.

FARM COMMITTEE:

S. H. ELLIS, L. B. WING, HENRY B. PERKINS.

FINANCE COMMITTEE:

THOMAS J. GODFREY, PETER H. CLARK, HENRY B. PERK

OHIO STATE UNIVERSITY.

1886-1887.

FACULTY.

WILLIAM H. SCOTT, A. M., LL. D.,
President and Professor of Philosophy.—University Grounds.

EDWARD ORTON, PH. D., LL. D.,
Professor of Geology.—104 Twentieth Street.

SIDNEY A. NORTON, PH. D., LL. D.,
Professor of General and Applied Chemistry.—Corner Town and Seventh Streets.

NORTON S. TOWNSHEND, M. D.,
Professor of Agriculture and Veterinary Science.—University Grounds.

ALBERT H. TUTTLE, M. SC.,
Professor of Zoology and Comparative Anatomy.—University Grounds.

STILLMAN W. ROBINSON, C. E.,
Professor of Mechanical Engineering.—1205 North High Street.

NATHANIEL W. LORD, E. M.,
Professor of Mining and Metallurgy.—Room 16, Hayden Block, E. Broad Street.

SAMUEL C. DERBY, A. M.,
Librarian, and Professor of the Latin Language.—Indianola Place.

WILLIAM R. LAZENBY, AG. B.,
Professor of Horticulture and Botany.—University Grounds.

JOSIAH R. SMITH, A. M.,
Secretary, and Professor of the Greek Language.—Indianola Place.

HENRY A. WEBER, PH. D.,
Professor of Agricultural Chemistry.—University Grounds.

BENJAMIN F. THOMAS, PH. D.,
Professor of Physics.—University Grounds.

GEORGE C. COMSTOCK, PH. D., LL. B.,
Professor of Mathematics and Astronomy.

GEORGE W. KNIGHT, A. M., PH. D.,
Professor of History and English Language and Literature.—University Grounds.

AUGUSTUS P. BLOCKSOM,
First Lieutenant 6th Cavalry, U. S. A., Professor of Military Science and Tactics, and Assistant Professor of Mathematics.—Park Hotel.

H. J. DETMERS, V. S.,
Professor of Veterinary Surgery.

C. NEWTON BROWN,
Assistant Professor of Civil Engineering.

ALICE K. WILLIAMS,
Instructor in the French Language.—Woodruff Avenue.

ERNST A. EGGERS,
Instructor in the German Language.

OHIO STATE UNIVERSITY, COLUMBUS, *November* 23, 1886.

To His Excellency, GOVERNOR JOSEPH B. FORAKER:

SIR: I have the honor to transmit herewith the (16th) sixteenth annual report of the board of trustees of the Ohio State University.

Very respectfully,
Your obedient servant,
ALEXIS COPE,
Secretary of the Board.

REPORT OF TRUSTEES.

OFFICE OF THE BOARD OF TRUSTEES OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, *November* 15, 1886.

Hon. JOSEPH B. FORAKER, *Governor of Ohio:*

SIR: In compliance with law the board of trustees respectfully submit the sixteenth annual report of the Ohio state university.

The accompanying reports of the president and faculty are for the university year ending in June, 1886. The report of the treasurer is for the fiscal year of the state, ending November 15, 1886, and shows in detail the receipts and disbursements of the funds of the university, exclusive of the appropriations made by the general assembly. The detailed statement of the disbursements of said appropriations will appear in the report of the auditor of state.

The part of the irreducible debt of the state which forms the permanent endowment of the university is shown by the treasurer's report to be $537,841.46, upon which the annual interest is $32,270.48.

The receipts from various sources which go to make up what may be called the regular income of the university have been as follows:

Balance in hands of treasurer November 15, 1885	**$1,417**	**32**
Interest on endowment	**37,239**	**98**
Term and laboratory fees of students	**5,845**	**00**
Rents of residences	**1,930**	**00**
Virginia military lands	**202**	**28**
Appropriations for expenses of trustees to repay amount paid out of current fund	**572**	**07**
Chemical apparatus sold to students	**147**	**30**
Experiment station, for work done by Prof. Weber	**300**	**00**
Farm department—sale of surplus products	**1,500**	**00**
Stall rent and sale of old carpet	**30**	**00**
Total receipts	**$49,214**	**15**

The disbursements of said funds have been as follows:

Expenses of trustees	**$183**	**41**
Salaries	**31,916**	**63**
Laboratories	**742**	**14**
Fuel and care of buildings	**460**	**46**
Printing and advertising	**923**	**92**
Expenses attending farmers' institutes	**107**	**00**
Ordinary repairs	**1,184**	**32**
Miscellaneous purposes	**2,359**	**54**
Total disbursements	**$37,877**	**42**
Balance in hands of treasurer November 15, 1886	**11,336**	**83**

In said account are included the funds received from the sale of the Virginia military lands, which have not been used in building and maintaining residences for the professors in accordance with the act of April 17, 1882.

The balance of said funds in hands of the treasurer November 15, 1885, was	$6,685 86
The receipts during the year	202 28
Total in hands of treasurer November 15, 1886	$6,888 14

Since the repeal of section 6 of the act of April 3, 1873, such balances have been carried into the account of the current funds of the university.

The face value of the outstanding collectible notes received from the sale of said lands is $3,891.34. Said notes are nearly all past due. It is probable that in some cases suit will have to be brought to collect the notes. Said lands have been sold under title bonds which become forfeited upon failure to pay the notes. The trustees have the option to sue on the notes, or to forfeit the bonds and recover back the lands. The policy has been, however, not to bring such suits as long as the purchasers have promptly paid the interest on the notes.

Mr. Samuel Kendrick, who was employed by the board some years ago to discover lands belonging to the university, has reported the recovery of a tract of 2,749 acres discovered by him in Scioto county. Said lands have been appraised at one dollar per acre. Mr. Kendrick has also, during the year, reported the discovery of a tract of 200 acres in Hamilton county.

This source of income to the university will be practically exhausted when the above notes are collected and the lands discovered by Mr. Kendrick are disposed of.

To show fully the actual receipts and disbursements of the university for the last fiscal year, there must be added to the amounts mentioned in the report of the treasurer the sums received from appropriations made by the general assembly and paid on warrants of the auditor of state. Below is given a tabulated statement showing balances of the several state appropriations November 15, 1885, the amounts appropriated during the last fiscal year, the total amounts subject to draft, the disbursements during the year, and the balances November 15, 1886:

Name of appropriation.	Balance Nov. 15, 1885.	Appropriated during year 1886.	Total amounts subject to draft.	Expended during fiscal year ending Nov. 15, 1886.	Balances Nov. 15, 1886.
Ordinary repairs	$ 70 29	$2,500 00	$2,570 29	$2,346 79	$ 223 50
Expenses of trustees	500 00	500 00	1,000 00	733 47	266 53
Fuel and care of buildings	1,244 15	2,000 00	3,244 15	2,415 82	828 33
Improvement of campus	329 14	1,000 00	1,329 14	936 69	392 45
Laboratories	3,126 91		3,126 91	2,940 35	186 56
Green house	450 00	600 00	1,050 00	600 00	450 00
Library	1,920 78	2,000 00	3,920 78	2,362 92	1,557 86
Veterinary museum, etc	1,582 75	1,000 00	2,582 75	682 79	1,899 96
Equipment horticultural department	215 05		215 05	169 08	45 97
Equipment laboratory agricultural chemist	1,623 21		1,623 21	1,623 14	07
Addition to equipment mechanical department	2,034 19		2,034 19	2,031 27	2 92
Salaries		10,000 00	10,000 00	9,999 16	84
Totals	$13,096 47	$19,600 00	$32,696 47	$26,841 48	$5,854 99

The following table shows the disbursements from the current funds and from state appropriations:

Purpose for which disbursed.	Paid out of current funds.	Paid out of state appropriation.	Total.
Ordinary repairs	$1,184 32	$2,346 79	$3,531 11
Expenses of trustees	*183 41	*733 47	916 88
Salaries	31,916 63	9,999 16	41,915 79
Laboratories	742 14	2,940 35	3,682 49
Fuel and care of buildings	460 46	2,415 82	2,876 28
Improvement of campus		936 69	936 69
Library		2,362 92	2,362 92
Green house		600 00	600 00
Veterinary museum		682 79	682 79
Equipment of horticultural department		169 08	169 08
Addition to mechanical department		2,031 27	2,031 27
Equipment laboratory agricultural departm't		1,623 14	1,623 14
Printing and advertising	923 92		923 92
Attendance at farmers' institutes	107 00		107 00
Miscellaneous purposes	2,359 54		2,359 54
Grand totals	$37,877 42	$26,841 48	$64,718 90

*$507.07 of this amount was drawn to pay expenses of trustees during fiscal year 1885 and part of current year, which had been paid out of current funds.

From the foregoing it appears that the total receipts of the university for the fiscal year have been:

Current funds		$49,214 15
State appropriations		32,696 47
Total		$81,910 62
Total disbursements:		
Current funds	$37,877 42	
State appropriations	26,841 48	
Total		64,718 90
Leaving a balance November 15, 1886		$17,191 72

Of which $11,336.73 is in the hands of the treasurer, and $5,854.99 in the state treasury to the credit of the several state appropriations.

The number of professors employed by the university is 16; assistant professors, 1; instructors, 4; assistants, 4; lecturers, 1. Their position and compensation is shown elsewhere in this report.

During the year the department of French and German, which had previously been under the direction of Miss Alice K. Williams as instructor, was divided. Miss Williams was retained as instructor in French, and Mr. Ernest A. Eggers was elected instructor in German. A demand for greater opportunities for acquiring a knowledge of these important modern languages made such a step imperative. Mr. Eggers brings to his new duties fine talents, a liberal education, and a zeal and energy which promises success.

Benjamin W. Snow, a recent graduate of Cornell university, was elected assistant in the department of physics, *vice* J. E. Randall, who resigned to accept more profitable employment with an electric light company.

The foregoing are all the changes in the faculty during the last fiscal year.

The number of students in attendance during the last academic year was as follows: Fall term, 305; winter term, 276; spring term, 240. The number in attendance during the present term is 324.

The number in attendance in the several departments and classes, and the course of instruction pursued in each, are shown in the reports of the president and members of the faculty, and in the catalogue which is made a part of this report.

At the commencement in June, 1886, on the recommendation of the faculty, the following degrees were conferred upon the parties named:

William Adams Connell, Portsmouth, O.,	Degree of	E. M.
Edward Jasper Converse, Columbus, O.,	"	B. A.
George Strode Cunningham, Lancaster, O.,	"	B. Ph.
William Stow Devol, Marietta, O.,	"	B. Ag.
James H. Erskine, Lowellsville, O.,	"	E. M.
Clara Fisher, Columbus, O.,	"	B. A.
Frank Edwin Hill, Neville, O.,	"	B. Sc.
Alfred Andrew Jones, Columbus, O.,	"	C. E.
William White Keifer, Springfield, O.,	"	B. A.
George Albert Masters, Toledo, O.,	"	C. E.
James Porter Milligan, Rushville, O.,	"	B. A.
Wallace Clement Sabine, Columbus, O.,	"	B. A.
Otto Schroll, "	"	C. E.
Anna Neill Scott, "	"	B. A.

Horace Prescott Smith, Adams Mills, O.,	Degree of	B. Sc.
William P. Vandervort, Morrow, O.,	"	E. M.
Willis Burton Viets, Amboy, O.,	"	E. M.
Sern Perley Watt, Jamestown, Neb.,	"	M. E.

The post graduate degree of M. A. was in like manner conferred on Annie Wood Sabine, of Columbus, Ohio.

The necessity for larger annual appropriations for "ordinary repairs" was set forth in the last annual report.

Of late years they have been inadequate to properly care for and preserve the numerous buildings from premature decay, and to keep the steam-heating, gas and water apparatus in proper condition. The cost of such repairs over and above what the legislative appropriations would pay, has been paid out of the current funds of the institution, notwithstanding the fact that the original grant in effect provides that such expense shall be borne by the state.

The appropriations for this purpose during the last year were $1,000 less than the estimates, though larger than heretofore. The trustees therefore appreciated the necessity of rigid economy in their expenditure, and would have made the sum allowed meet the current demands if an unforeseen emergency had not arisen which had to be provided for.

For many years the condition of the tower of the main building has been such as to occasion anxiety concerning its safety. Shortly after its completion attention was directed to cracks appearing in its walls, and it was frequently examined by committees of experts in order that faculty and students might be satisfied of its security; and although the reports of such committees were usually to the effect that the tower was in no immediate danger of falling, such anxiety was never wholly abated. On November 14, 1883, the board of trustees appointed a committee, consisting of Professors McFarland and Robinson, and architect Harris, to examine into its safety, and report to the executive committee, who were instructed to carry out the recommendations of said committee of experts. On the 31st day of March, 1884, said committee made its report, expressing confidence in the safety of the structure, but recommending that a heavy iron rod be run through the inside of the front wall over the arch at the main entrance with heavy washers, to clasp the buttresses on the outside. This was shortly afterwards done, and it was thought that the danger, if any really existed, was averted. During the latter part of April of the current year, however, attention was again called to widening cracks in the foundation near the main entrance, and to other alarming indications that the front wall of the tower was falling. At the request of the board of trustees it was again examined by Professor Robinson, who expressed the belief that the sandstone facing around the base of the tower was slowly crushing under its load, and that it was extremely desirable, in fact, necessary, very soon, for security to the building, to replace the same with stronger stone.

It was also at the same time examined by architect Terrell, who agreed with Professor Robinson as to the necessity for some steps looking to its greater security. At the June meeting of the board of trustees architect Terrell made another examination of the tower, and reported that the openings at the base in the stone-work were much wider than when his attention was last called to them a few weeks before; that the condition of the piers between the second story windows indicated a crushing of the brick-work on the inside; that the window sills and front wall of the tower were broken from top to bottom, and that there was great danger of the front of the tower falling from slight disturbance such as the action of the frost or firing cannon in front of the buildings.

With such a state of facts presented for their consideration, and feeling that such a danger admitted of no delay, the trustees at once set about repairing the falling tower. The real cause of the mischief, as reported by architect Terrell, was " an overloaded base constructed of soft brick with a thin shell of stone, and an arrangement of arches so that the weight of the superstructure was thrown too much on the small columns at the entrance."

To remedy the defect it was found necessary to remove the heavy overhanging mass of brick at the top of the tower, and to strengthen the foundation by replacing the crumbling sandstone with material of a more durable character.

At first it was thought this could be done without removing the roof of the tower, but as the work progressed it was found necessary not only to remove the roof, but to tear down all the walls, a distance of forty feet or more from the top of the tower, and the front wall clear to the foundation. remove the foundation and rebuild the same anew. The difficult and dangerous work of taking off the roof and bracing the floors so as to support the heavy weight of brick and stone to be used in rebuilding the structure was undertaken and successfully accomplished by Frank A. Ray, assisted by Scott A. Webb and M. F. Capron, all students of the university, after an experienced contractor had undertaken and abandoned the job. Said students were more or less employed about said work until the beginning of the present term, when they were compelled to re-enter their classes. The trustees feel a just pride in the fact that these students have received at the university the instruction and practical training that enabled them to successfully accomplish such a task.

This important and unavoidable work, together with other necessary repairs, has exhausted the appropriation for ordinary repairs made by the general assembly, and has made a heavy draft on the current funds in order to meet the large and unexpected outlay. The excess of such expenses over the appropriation is $2,735.00, for which the general assembly will be asked to make an appropriation. There are now more than twenty separate buildings on the university grounds, and all need more or less attention to preserve them from dilapidation. The steam-heating equipment is old and needs constant repairs. Water-tanks, cisterns and sewers also need attention. To properly care for all of them the trustees ask a reasonable appropriation for ordinary repairs, an estimate for which will be found elsewhere.

The gas-works at the university, which were ample to supply gas for illuminating and laboratory purposes when they were constructed several years ago, are about worn out and need extension in order to meet even present requirements. For the convenience and safety of the public, and for the protection of the buildings and other property of the university, it is necessary that the grounds and open spaces about the buildings should be lighted at night. There is now no lamp-post on the university grounds nor at the main entrance thereto. The extension of the gas-works should, in the opinion of the trustees. not only provide for the probable increase of consumption in the various buildings and laboratories, but also for lighting the grounds. There will be needed for such extension the sum of $2,000, for which the legislature will be asked to make a special appropriation.

The Ohio agricultural experiment station has, for some years, conducted its experiments on the university farm under arrangement mentioned in previous reports. It has had the use of a small portion of the farm for field and garden experiments, in return for which its surplus products, except what have been needed for seed, museum purposes and the like, have been turned over to the university farm.

Its experiments have been conducted entirely separate and apart from those conducted on the university farm under the direction of the professor of agriculture. As a result, there have been two series of experiments, often of the same character, going on side by side, with a duplication of labor and outlay and with results more or less unsatisfactory. At a meeting held early in the present year a committee of the board of trustees was appointed, to meet a similar committee of the board of control of the experiment station, with a view to a more economical and satisfactory arrangement. Said committees agreed upon a plan of operation for the future, which was reported to the separate boards and ratified by both. The points of said new arrangement are in substance as follows:

The professor of agriculture of the university is made director, and the professor of horticulture vice-director of said station.

Said station is to conduct such experiments on the university farm and in the fruit and vegetable gardens, as may be mutually agreed upon by the board of control of said station and said professors of agriculture and horticulture; the field experiments to be conducted by the superintendent of the university farm, under the direction of the professor of agriculture, and the experiments in horticulture to be conducted by the superintendent of the gardens, under the direction of the professor of horticulture and botany,—the work to be done and the expense to be borne by said station.

The professor of agricultural chemistry to be chemist, and the professor of veterinary surgery to be veterinarian of said station.

Said station to turn over to the university all products raised, except what are needed for seed, museum purposes, and for experiments in feeding stock.

In pursuance of said arrangement, Mr. William S. Devol, B. Ag., a graduate of the university of the class of 1886, has been appointed superintendent of the farm and of the field experiments of said station—an appointment which is highly satisfactory to all concerned.

Mr. W. J. Green, who for some years has had charge of the fruit and vegetable gardens of the university, was appointed superintendent of the gardens and of the horticultural experiments of said station.

Under this arrangement it is believed that better results can be obtained. The experiment station will be able to multiply its experiments and conduct them on a broader scale, thus making them more valuable to the people of the state, while the departments of the university in which are taught the branches relating to agriculture, will be enriched by the facilities thus afforded for practical instruction in said branches.

The professors of the university who have thus become connected with the experiment station have, in addition to, and in connection with their regular work as teachers, conducted important investigations and experiments, whose results are of great value to the public,—detailed accounts of which have been published in the bulletins and reports of said station. Among the more important may be mentioned the investigations of Professor Weber into the method of testing frauds in the manufacture of butter, and investigations of Prof. Detmers as to the origin and cause of swine-plague, or hog-cholera.

The university farm, under the very able and energetic supervision of Professor Weber, is in excellent condition. His report as farm manager, filed herewith, shows its receipts for the year ending November 1, 1886, to have been $5,842.25; expenses, $4,300.88, leaving a balance of $1,542.17, of which $1,500 has been paid to the treasurer of the university. The report also shows in detail the farm operations during the year, an account of the field experiments, the improvements made, the number and value of stock and farm implements, and the amount and value of grain, feed, and other products raised, consumed and sold.

The farm has not, heretofore, been a source of revenue to the university. It has been regarded rather as holding the same relations to the departments of agriculture and horticulture as the various laboratories to the respective departments to which they belong. The revenue derived from the sale of surplus products has been expended in improvements or in conducting experiments in field and garden. It is gratifying to record the fact that while it has fully served its purpose as a laboratory for the agricultural students, it has been so successfully managed as to yield an important addition to the revenues of the university.

The farm still affords opportunities for many students to earn a portion of their expenses while attending the university, which opportunities will proably be increased by devoting a larger area to experimental work.

That part of the university estate which is devoted to experiments in horticulture, has been in charge of the professor of horticulture and botany, whose report is also filed herewith. Said report shows the receipts to have been $794.92; expenses, $785.74; balance on hand, $9.18.

The report also shows in detail the operations, including the experiments, conducted during the year.

The department of horticulture and botany has been greatly benefited by the small appropriation made for its equipment, and which has been expended in procuring an assortment of hand tools, budding knives, grafting implements, pruning shears, etc., and in adding numerous specimens of dried plants to the herbarium and living ones to the greenhouse. These have greatly improved the facilities for illustrative work. Attention is called to the recommendation of Professor Lazenby for an appropriation of $500 for the erection of a small propagating house for supplying plants for garden, grounds and green-house, which recommendation is heartily approved by the trustees.

The report of Professor Lazenby as superintendent of the grounds, details what has been done in the last year towards improving and beautifying the campus, and presents in a very convincing manner the desirability of further efforts in this direction. The influence of tasteful and beautiful surroundings on the mind and heart of the student cannot be overestimated. In this connection attention is invited to that part of the report of President Scott referring to the proposed establishment of a botanical garden and arboretum at the university, a proposition which has heretofore been cordially indorsed by the trustees, and which should receive the hearty approval of the people of the state and their representatives.

Attention is also called to the suggestions of Professor Lazenby, in the direction of providing greater opportunities for the physical training of students. Such suggestions are also cordially approved. It has long been the desire of the trustees to establish at the university a well-equipped gymnasium, in order that students and faculty might have the very best opportunities for needed physical exercise and development, but they have been without the requisite means. The suggestion of President Scott, of uniting in one building an armory and gymnasium seems practical and desirable. Such a building could be erected at a moderate cost, and is one of the needs of the university.

The military department of the university, under the very efficient command of Lieut. A. P. Blocksom, has reached and maintains a high state of discipline, and while it is preparing the young men for a proper discharge of their duties as soldiers should the country need their services, and offers a fine opportunity for out-door physical training, it is also a conservative force in maintaining order in teaching sentiments of soldierly honor and in promoting habits of obedience and respect for lawful authority. The wisdom of the land grant, in requiring instruction in military science and tactics, is justified of her children. Experience has shown that while it provides the material for properly officering the national militia in time of public danger, it also supplies a means of physical culture and mental and moral discipline whose value cannot be overestimated.

The appropriations for the veterinary museum and appliances for instruction in veterinary anatomy, physiology, etc., have been partly expended in the erection of a small building for dissecting the larger animals, in fitting up a room in the basement of the main building for the museum, and in supplying needed equipments in the departments of veterinary science and physiology. The model horse, ordered more than a year ago from the manufacturers at Paris, is completed, and will soon arrive. What remains of said appropriations will be expended in providing the necessary cases and furnishing the jars for the reception of anatomical specimens and in preparing skeletons and other articles needed for the equipment of the museum, which will be a very valuable acquisition to the students of veterinary science and comparative anatomy.

The appropriation made by the general assembly two years ago for additional equipment of the mechanical laboratory, and which has been wisely expended under the direction of Professor Robinson, has greatly increased the facilities for instruction in the higher grades of mechanical work. The university is thereby enabled not only to give the most thorough practical instruction in all that relates to the work of a mechanical engineer, but also to afford an opportunity for manual training to students in other departments. The students in this department are not only correctly instructed in the principles of mechanical movements, but side by side with such instruction are taught the use of tools, beginning with the simplest. Starting at the carpenter's bench and blacksmith's forge, they ascend step by step through pattern-shop, moulding-room, and foundry, to the machine-shop, where they are taught the care and management of delicate and complicated machinery. As one of the conditions of graduation in this department, each student is required to plan and construct a model of some mechanical movement, which is deposited and preserved in the department. Special mention is made of the work in this department, because the subject of manual training in schools is justly claiming a large share of public attention.

In the other departments of the school of engineering, like opportunities are afforded for putting the knowledge gained to practical use.

The department of mining and metallurgy, under the very able direction of Professor Lord, is well equipped with furnaces for smelting ores, appliances for making assays of the more precious minerals, and a well-appointed laboratory for chemical analysis. These, with the thorough instruction imparted, are attracting a large share of the graduates of the university.

In the department of civil engineering, students have daily practice, in good weather, in the use of instruments in actual field work, and upon graduation are fully competent to take upon themselves the important and responsible duties appertaining to that profession.

In no department of the university has there been a greater progress than in that of comparative anatomy and physiology, under the able direction of Professor Tuttle, and no department is in more pressing need of additional equipment. The practical value of extensive and thorough instruction concerning the structure and functions of the living body, not only to those students who look towards the practice of medicine, but to every young man in active life, need not be urged. To make such instruction real and valuable, requires appliances not only for the use of the instructor in lectures and demonstrations, but particularly for the use of the student himself,—such as atlases and plates, skeletons, and other anatomical preparations, for the illustration of the grosser parts of the body; microscopes for the more minute examination; models and schemes of such parts as may be so illustrated, and such instruments for its explorations and experimental examinations as may be profitably used by the students. The faculty having recently and wisely made laboratory work in anatomy and physiology obligatory for a large proportion of the students, it is necessary, in order to secure to such students the most economical use of their time, that the appliances required for their use should be provided in numerous duplicates. The recommendation in the last annual report, for an appropriation of $5,000 for the equipment of this department, is therefore renewed.

Attention is respectfully invited to the report of Professor Thomas, wherein is set forth the necessity for additional room for the students in the physical department—a necessity which has been repeatedly urged both by Professor Thomas and Professor Mendenhall, his predecessor. This great department needs a suitable separate building in order to thoroughly adapt it to the requirements of the present time and place it abreast with like departments of competing institutions.

Attention is also called to the report of Professor Comstock, in which he so ably presents the great desirability of an observatory for practical instruction in astronomy.

The trustees also invite attention to the report of Professor Orton, in which he again presents the necessity for a fire-proof building in which to arrange and preserve the valuable collection of the state in the geological museum. This collection is constantly exposed to danger from fire; its loss would be irreparable—and while the necessity for additional buildings for other departments of the university is pressing, it is felt that this has the first claim and should be first provided for. Attention is called to the general features of such proposed building as set forth in Prof. Orton's report. The trustees again earnestly recommend an appropriation of $50,000 for the erection of such building.

The report of the librarian shows that during the last academic year the number of volumes added to the library was 1,485, and that the number at the close of said year, exclusive of some 2,000 pamphlets, was 6,844. Since that date a number of volumes have been added, which increases the collection to near 7,000 volumes.

The librarian and committee in charge have endeavored to obtain, first, those books best adapted to the present needs of all the departments. The collection is still very small and greatly inadequate to meet the demands of a growing university.

The trustees hope that the liberal appropriations for this purpose, made by the general assembly during the last two years, will be supplemented by still more liberal appropriations, annually, until the university library becomes worthy to be called by that name.

The pressing need of a more commodious and safer depository for the library collection is also set forth in the report of the librarian. A room in a fire-proof building should be provided for its preservation.

Attention is called to that part of the report of President Scott which refers to the necessity for some provision for the laboratory students in the department of pharmacy, and also to the report of Mr. Kauffman, who has charge of such work. Any provision which is made for such department in the present buildings, in their crowded condition, could only be temporary, and the expense of fitting up such a laboratory as will meet its requirements in any room which is now available would be largely thrown away. The best and most economical provision suggested is an addition to the building occupied by the chemical laboratories. Such building was erected with reference to additions, from time to time, and a wing sufficiently large to provide a lecture-room and laboratory for the department of pharmacy can be erected at moderate cost. It is thought that the sum of five thousand dollars would be sufficient to erect the building and fully equip the department.

The state meteorological bureau still has its headquarters at the state university, the professor of physics being its director. During the past year an officer of the signal service of the United States army has been detailed to make a series of observations relating to atmospheric electricity, and facilities for such work have been provided at the university.

The state archælogical and historical society still is furnished space for the storing of its important and growing collection, and space has been set apart for the display of the Ohio educational exhibit at the New Orleans exposition, which, through the kindness of the state school commissioner, has been deposited at the university.

The condition and progress of the various departments of the university, not specifically mentioned in this report, are set forth in the reports of the president and faculty.

In every department there is steady and substantial improvement, excellent order prevails, and both students and faculty manifest the true university spirit. The trustees will ask the general assembly for the following estimated appropriations for the ensuing year:

Expense of trustees	$500 00
Salaries	10,000 00
Ordinary repairs	3,000 00
Fuel and care of buildings	3,000 00
Care of green-house	600 00
Care and improvement of grounds	1,500 00
Library	3,000 00
Physiological laboratory	5,000 00
Physical laboratory	2,000 00
Repairs of tower	2,735 00

SPECIAL APPROPRIATIONS.

Propagating house	$500 00
Geological building	50.000 00
Astronomical building	6,000 00
Repairs of gas-works	2,000 00
Armory and gymnasium	20,000 00

The necessity for these appropriations is set forth in the preceding part of this report, and in the reports of the president and faculty, which are submitted and made a part hereof.

In the foregoing pages, and in the reports herewith presented, the trustees and faculty, to whom have been confided the important and growing interests of the state university, have endeavored to present a correct report of its condition and progress, and some but not all of its present needs. It has reached a period in its growth and development when ampler resources must be provided, if it is to fulfill its high mission. Among the public institutions of the state there is none that occupies a prouder position, or that is capable, if properly supported, of wielding a wider and more beneficent influence; and yet, as compared with the other state institutions, the financial aid it has received from the state has been small indeed. When compared with similar institutions in other states, the amount of state aid it has received is insignificant.

The general assembly in recent years has manifested a more liberal spirit, and a broader comprehension of the scope and purpose of the university. There has been a recognition of its growing necessities, and of the fact that it has become a vital part of the educational forces of the state. It now relies upon the general assembly for appropriations for a part of its annual current expenses. This, however, is unsatisfactory, for with an income which is indefinite and uncertain no well-considered plans can be devised for its future progress. The tenure of officers and teachers is insecure, and the future of the institution is clouded and doubtful. These difficulties have been wisely met in other states, notably Michigan and Wisconsin, where a fraction of a mill on the grand duplicate of the state is set apart for the support and maintenance of their respective universities. Ohio should do the same thing. The trustees have repeatedly in their annual report recommended such action. In the states named the wisdom of such a provision is seen, not only in the vigor and solidity of their universities, but it has been a step in the direction of bringing the higher educational interests of the state into organic connection with the common schools, to the mutual advantage of both.

The above suggestions are commended to the thoughtful consideration of your excellency and the general assembly.

Very respectfully,

ALEXIS COPE, *Secretary.*

THE ANNUAL REPORT OF THE PRESIDENT.

Seth H. Ellis, President of the Board of Trustees:

DEAR SIR: I have the honor to submit the following as my fourth annual report, the fourteenth annual presidential report since the opening of the university.

The year has been one of faithful and successful labor, and has placed the university on a more solid footing than ever.

The division of the chair of modern languages brought us the only addition to the faculty. By this action the efficiency of the instruction in these languages has been much increased, for neither of the instructors being over-taxed as the one instructor was, they are able to bring to their work greater freshness and vigor. It will now be possible also to offer more extended courses in French and German. I congratulate you on your choice of the new instructor. Mr. Eggers brings to his duties, not only knowledge and training, but force and earnestness.

The number of students in attendance during the college year was 319. Of these 277 were young men, and 42 were young women. The number that has entered during the present term—the fall term, 1886—is 325, of which 279 are young men and 46 are young women. The number given in the catalogue, which accompanies this report, is made up of the students who have entered for the present college year, and those who entered last year after the publication of the catalogue.

Several, whose attainments would have secured their admission in previous years, have been excluded by the new requirement of a year of Latin for entrance to the courses in arts and in philosophy. Indeed, by lowering the standard of admission, it would be easy to increase the number of students far beyond what it is. But we should in that way only crowd our rooms with immature boys and girls who would be better off in the common schools, and who would consume the time and strength of teachers who ought to be employed in work of a higher grade.

The courses recently adopted have already met with a fair degree of success. Seventeen students began the short course in agriculture last year; nineteen this year. In arranging this course, and in fixing the terms of admission, we have endeavored to bring it within the reach of the greatest possible number of the young farmers of the state. We have placed in it the most available and practical studies taught in the university, and have formed two or three special classes for it. The standard of admission has been reduced below that for any other course, no algebra being required and candidates over twenty-one years of age being admitted without any examination. As yet we find that some of those who enter on these easier conditions are unable to do the work prescribed; but we hope that as the real character and value of the course become better known, the sons of Ohio farmers will seek its advantages in far larger numbers, and with due preparation.

The new course in veterinary science has awakened much interest, and many inquiries concerning it are received. Four students are now under instruction in it* It is unfortunate that the prevalent idea of veterinary education should be so low. Many of those who write for information seem to think that six months or a year is quite long enough to transform a man who is deficient in the very rudiments of education into a competent veterinarian. We should consider it an important part of the service which this department of the university is to render the public, to elevate the popular notion of what a veterinary education should be.

The work in pharmacy was initiated last year with a class of ten students. This year fifteen new students have entered it. A more extended curriculum has been laid down, requiring three years of study, and the degree of graduate in pharmacy—Ph. G.—has been adopted for those who complete it.

Hitherto the work in pharmacy proper has been conducted in the department of agricultural chemistry. The head of this department has done all in his power to afford accommodations to the students in pharmacy as well as his own; but the time is near when another arrangement must be made. The number of students in the two departments, of whom laboratory work will be required next term, exceeds the number of desks; and the quantity of material and apparatus is becoming so great as to interfere with the work for which the laboratory was created.

One of the most important events of the year has been the recasting of the three general courses of study. The end sought was to open to the student a wider range of elective studies. He may now, while pursuing one of these courses, incorporate into it a much larger amount from the others. This privilege is restricted, however, to the later years of college life. The preparatory and freshman studies are required as before, except that in the freshman year of the courses in arts and in philosophy an election is offered in the second and third terms between three hours a week of mathematics and three or four hours of science. In the sophomore year of these two courses nine hours a week are prescribed and eight are elective. In the junior year eleven hours a week are prescribed and five are elective. In the senior year eight hours a week are prescribed and seven are elective. In the course in science all work below the sophomore year is prescribed. In that year ten hours a week are prescribed and seven are elective. In the junior year six hours and in the senior year five hours are prescribed, and ten hours are elective; five of the latter, however, must be science.

Thus during the earlier years of his collegiate career the student is required to lay a foundation of general knowledge and discipline; but as he becomes more mature and is better qualified to judge for himself, he will assume a partial direction of his course. This is in harmony with sound pedagogical principles. It avoids, on the one hand, the old extreme of a hard and fast requirement of all studies without regard to the student's aptitudes and purposes, and, on the other, it shuns the new and more pernicious extreme of making all studies elective. It requires enough to give breadth and solidity; it leaves enough free to meet the peculiarities of individuals. At the same time the logical order of studies is better observed than before. For example, chemistry precedes physiology instead of accompanying or following it; more mathematics is secured as a preparation for physics; and ethics follows psychology in each of the courses.

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*By a typographical error I was made to say in my last report "seventeen" instead of seven.

The following rule concerning examinations has recently been adopted:

> "*Resolved*, That where two or more written examinations have been held during the term in any college study, the professor in charge of the department may, at his discretion, give credit for the work of the term to such students as have passed the mid-term examinations and given other satisfactory evidence of their proficiency, without holding them for the final examinations."

A principal advantage of this rule is that it tends to promote regularity of work. When the result of a term's work is made to depend wholly on a final examination, there is a strong temptation to defer earnest preparation for it till the time of account draws near. In the degree to which this temptation prevails, the best fruits of study are sacrificed. Instead of forming habits of systematic and persevering application, which are of the very essence of education, the student drifts into habits of desultoriness and procrastination. It is desirable that examinations should be so arranged and conducted as to secure the highest degree of uniform effort,—that is, effort brought up to the highest point that the student is able to sustain without injury, day by day throughout the year.

This plan avoids the evil of making the success or failure of the work of an entire term depend on a single test. The first students, indeed, never fail, but even they sometimes stand lower on a single examination than they would on an average of two or three. For they are liable, through illness or other unavoidable hindrance, to be taken occasionally at a disadvantage; but it is not likely that this will happen two or three times in succession. A similar disadvantage, impairing in an equal ratio the work of an average student, may cause him to fail, whereas a second and third examination will probably show him at his true worth.

The new plan has advantages for the teacher as well as for the student. If the student is indifferent, the greater part of the teacher's labor is wasted. While it is true that an intelligent and vigorous teacher does much to inspire his class, it is equally true that a studious and eager class does much to inspire the teacher. A teacher can do his best only with industrious and responsive students. Whatever, therefore, contributes to industry and interest on the part of the class, contributes also to the power of the instructor.

Under this rule the teacher may distribute his work of examination so as to avoid a heavy accumulation of it at any one time. This will allow him to give to each paper the attention of a clear and unwearied brain and time enough for a careful judgment of its merits. Formerly the case has been widely different. Every class in the university has been examined within a few days and each teacher has been obliged to decide within that time upon the papers of all the students in his department. The amount of this work, considering the time into which it must be compressed, was sometimes enormous. For one or two days it may be done well, and the strain be borne without injury; but for the rest it must be performed with reduced energy, and either the work must be slighted or the examiner must pay a heavy penalty in nervous prostration.

These benefits may not all be immediately realized; some of them may be realized only in a subordinate degree; but the probability of gaining them amply justifies the change that has been adopted.

The moral and religious tone of the university is a matter which we should hold subordinate to nothing else. Intellectual acumen and scholastic attainments will be of no value to a man—the man himself, however highly educated, will be a bane to society, if he be immoral. Rectitude, probity, purity, are qualities of chief consequence. Characacter is the supreme consideration; nothing else is second to it. I am glad to believe that a healthy moral sentiment prevails among the students. The public opinion in the university approves truthfulness and uprightness and manly dealing, and it so heartily condemns meanness and immorality that they are seldom manifest.

A branch of the Young Men's Christian Association has been maintained for three years, with an increasing membership and an extending influence. It has been of great use in bringing together and thus strengthening and encouraging the Christian young men of the university.

The attendance of the students at the chapel exercises is almost universal, a few being excused a part of the time on account of special inconvenience in being at the university at the time appointed for the service. There are always several members of the faculty present, and I am indebted to some, not only for their regular attendance, but for their cordial support and for their kindiness in conducting the exercises on various occasions.

An attempt has been made at two different times to have clergymen from the city attend by turns as often as once a week; out the great distance has proved to be an inseparable obstacle.

Usually a hymn is sung, a selection from the Scriptures is read, and prayer is offered. The music is in charge of Professor Smith, who, with his efficient choir, has given great satisfaction. The desire is that the other part of the exercises may be free from dogma, simple, sincere and reverent. The order is frequently varied with a reading or an address on some moral or educational topic.

The literary societies do an important part in the education of their members. The interest in them is well maintained, and the results of their work are highly creditable. The general appreciation with which they are regarded is shown by the large audiences that greet them on all their public occasions.

The battalion manifests unusual spirit and is making commendable proficiency. The number of students excused on special grounds has been steadily reduced, until it has, perhaps, reached, or almost reached, a minimum.

I have pleasure in stating that the present management of the dormitories is very satisfactory. The expenses are reasonably low, and an orderly spirit is maintained. At the close of the last college year Mr. and Mrs. W. W. Scott, who had been in charge of the large dormitory for seven years, retired. They had rendered faithful service, and the institution has lost in Mrs. Scott a woman of unusual qualifications for such a position. Mr. and Mrs. Lehman, who have succeeded them, enter upon their new duties with zeal, and they have the cordial co-operation of the members of the club.

Outside clubs continue to flourish, four having been organized the present term with an aggregate membership of about sixty. Many students prefer these clubs, because they combine the social and economical features of the dormitory with the privacy of family life.

In accordance with the instructions of the board, an earnest and protracted effort was made to provide during the year a course of lectures in elementary law, and at one time confident expectations were entertained that such a course would be delivered by able and distinguished men. Judge Daughterty delivered one lecture, and would have delivered more but for the failure of his colleagues. One of these, Judge Johnson, of the Supreme Court, was obliged to withdraw from his engagement on account of the state of his health; and the others felt compelled by the pressure of professional business to postpone their lectures from time to time till it was too late for them.

The work in elocution, though by no fault of the instructor, was less satisfactory than it was the previous year. This was owing in part to the fact that arrangements for the work were so long delayed, and partly to certain exigencies in the general program and rules which reduced the attendance of the classes in this subject.

An organic unity of the university with the common schools would seem to be in accordance with the fitness of things and would promote the efficiency of both. As far as the trustees and faculty can effect it, the university and the schools have already been brought into harmony and co-operation. The requirements for admission have been adapted to the attainments of candidates who obtain their preparation in these schools. Pupils who have acquired the knowledge and training that a good district school can give are able to enter the preparatory department, and there are nearly forty high schools of the state whose graduates are eligible to freshman rank at the university. For admission to the freshman class no Greek is required in any course, and candidates who come from high schools in which no German is taught may bring Latin as a substitute in any course, except two. It remains for the general assembly to place the university in such an official relation to the other parts of our system of public instruction as the proper performance of her functions seems to require.

The reasons urged in former reports for the erection of a new building for the department of geology have lost none of their force by delay. On the contrary they are more cogent than ever. The museum continues to grow, and yet continues to be hampered in its growth by lack of room. If fire should destroy it, the loss would be irreparable; and the recent destruction of educational buildings by fire, abroad and at home, warn us that the danger is not imaginary. I commend to your attention the strong statement in favor of a new building, contained in the report of the head of the department.

The need of other buildings increases year by year. The professor of physics again asks that you will consider the importance of providing more suitable quarters for his department. He but desires what was no less earnestly desired by his predecessor, and I hope that the time is not far off when we shall have a physical laboratory equal to any in the country.

Other very desirable objects, for which money could be profitably expended, are a botanic garden, and a building to be used as a drill-hall and gymnasium. I hope that it will not be long before both of them can be provided. A propagating house would be of great value to the department of botany and horticulture.

I would call special attention to the report of the professor of zoology. Your appreciation of the wants of his department was shown last year by your ready response to his request.

Unfortunately the condition of the treasury of the state proved to be such that it was thought expedient not to press the matter, and the wants still remain to be supplied. I trust that you will again indorse the request and that we shall this year reach a more satisfactory result.

What is said by the professor of Latin in regard to the purchase of illustrative material for teaching the ancient classics, is commended to your consideration. I hope that the small sum asked for can be allowed.

I wish to second also the request of the professor of mathematics and astronomy for the erection and equipment of a small astronomical observatory for the purposes of instruction. The reasons for it are set forth in his reports for this and the last year.

The library is daily increasing in usefulness. The books purchased within the year form a body of working material that is worth to teachers and students far more than it has cost. Indeed it is safe to say that no money expended by the university, except that for tuition, brings a return of higher educational value. For a university, however, the library is still a very small collection, and at its present rate of growth it will be many years in attaining a size commensurate with the demands of the institution. The librarian asks for an appropriation of five thousand dollars for the coming year. It is none too much, and that sum can be expended to great advantage.

I was gratified to find in the general assembly last year a growing sentiment in favor of a permanent appropriation for the university. We have often presented the reasons for the adoption of this course, and the plea for it has been urgent. The university should be recognized as a part of the educational system of the state by being placed on the tax duplicate, side by side, with the common schools. One-twentieth of a mill would enable us, in time, to erect such buildings as are needed, and to make such expansion of the work as would lift the university almost at once to her proper place among the first institutions of learning in the land. With such an income on which she might depend from year to year, a policy liberal and far-reaching in its aims and definite in its methods could be confidently adopted and steadily pursued. Let us once more call upon this great state by every consideration of policy and of duty, to make the university broad and powerful enough for the complete performance of the great work which we believe awaits her in the future.

All of which is respectfully submitted.

WILLIAM H. SCOTT, *President.*

I append the following statement of my own classes: In the first term I had a class in psychology consisting of 17 students, one in ethics consisting of 10 students, and one in logic consisting of 10 students. During the second term psychology was continued with a class of 16 students and logic with a class of 9 students. In the third term the first class had metaphysics, and contained 16 students, and the second had the history of philosophy, with 11 students.

The first-named class in each term consisted of the juniors in the courses in arts and philosophy, and the seniors in the course in science. The other classes consisted of the seniors in arts and philosophy. Each class met three hours a week throughout the year, except the class in logic, which met two hours a week.

WILLIAM H. SCOTT.

DEPARTMENT REPORTS.

DEPARTMENT OF MATHEMATICS AND ASTRONOMY.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following report of the department of mathematics and astronomy, for the college year ending June, 1886.

The organization of classes in the departments was as follows:

Term.	Class.	Subject.	Instructor.	No. of students.	Remarks.
FALL.	I. Preparatory	Elementary Algebra	Asst. Prof. Blocksom	38	2 secti'ns.
	I. “	“ “	Mr. McCoard	19	
	II. “	Plane Geometry	Prof. Comstock	29	
	II. “	“ “	Mr. McCoard	29	
	Freshman	Higher Algebra	Prof. Comstock	43	2 secti'ns.
	Sophomore	Analytical Geometry	“ “	25	
WINTER.	I. Preparatory	Elementary Algebra	Asst. Prof. Blocksom	32	2 secti'ns.
	I. “	“ “	Mr. McCoard	12	
	II. “	Solid Geometry	Prof. Comstock	21	
	II. “	“ “	Mr. McCoard	26	
	Freshman	Analytical Trigonometry	Prof. Comstock	28	2 secti'ns.
	Sophomore	Calculus	“ “	20	
SPRING.	I. Preparatory	Plane Trigonometry	Asst. Prof. Blocksom	21	
	I. “	“ “	Mr. McCoard	26	
	Freshman	Spherical “	Prof. Comstock	25	
	Sophomore	Calculus	“ “	17	
	Junior	Astronomy	“ “	19	

Total number of enrollments in all classes	430
Number of students (no name counted twice)	172

In addition to the above regular college classes, I conducted during the winter term a volunteer class of seven members in the method of least squares.

The extension of our mathematical curriculum, to which I alluded in my last report, has been in part accomplished. Provision is now made whereby juniors in the science course may pursue the study of certain branches of the higher mathematics. It is my intention for the present to confine the electives here offered, to those branches of mathematics which are largely applied in the physical sciences and the arts based upon them. A short course of mathematical study has also been opened to freshmen in the arts and philosophy courses, but this is still an inadequate provision for those students. I hope that the day is not far distant when equal opportunities for the study of mathematics will be presented to all students in the general courses of study of the university.

Since the date of my last report I have organized and I am now conducting a class in mathematical astronomy. This class consists of fourteen members, each of whom should receive instruction in the theory and training in the use of the commoner astronomical instruments, such as the sextant, theodolite, transit, and zenith-telescope. Such training is now impossible, as the only instrument possessed by the department which is suitable for the purposes of this class, a sextant and artificial horizon, while in itself a good and serviceable instrument, is a wholly inadequate provision for such a class. I desire to repeat with renewed emphasis the recommendation contained in my last report, that there be established upon the university grounds a small astronomical observatory for purposes of instruction. It should be borne in mind that what is here contemplated is not a large and expensive building, fitted with elaborate appliances for scientific research. A modest building, fitted with a few small but well-made instruments, will suffice for instruction in the general method of the astronomer's art and for the training of students in observations of precision. Such an observatory is as essential to proper instruction in astronomy as a laboratory to instruction in chemistry or physics. It can be built and equipped for the sum of $6,000, and I earnestly request an appropriation of that amount for the purpose.

Very respectfully,

GEO. C. COMSTOCK,
Professor of Mathematics and Astronomy.

Ohio State University, October 9, 1886.

DEPARTMENT OF PHYSICS.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following statement of the work in the department of physics for the year ending in June, 1886.

The classes instructed were three in number. The second preparatory students formed one class, during the second and third terms. The second class was of sophomores, working through the year. The third class was in laboratory work, and was composed of seniors in engineering courses, and of optional and post graduate students. This class also worked through the three terms. The number of students enrolled in these classes was as follows:

Second preparatory	64
Sophomore	57
Laboratory	13
Total	134

Mr. J. E. Randall resigned his position as assistant March 1st, to accept a place with the Thomson-Houston Electric Light Co. His work was then divided between Mr. C. A. Marple and Mr. E. H. Mark, the latter giving instruction to the second preparatory class.

Some valuable pieces of apparatus were added to our equipment during the year. Among them may be named a pair of very fine Rowland diffraction gratings, a Hipp's chronoscope, a Wiedemann galvanometer from Edelmann, a Thomson galvanometer, and other electrical pieces from Elliott Brothers. In addition to these, several less important pieces were received from Koenig, Salleron, Duboscq, Browning, and other celebrated makers. These additions will be followed by others of the same grade during the coming year.

I desire to again call your attention to the need of a proper building for the use of the department. Our present rooms are inadequate, and are not well adapted to our work. It is now conceded that the most valuable training in physics is that obtained in the laboratory, and the smaller colleges are following the example set by the leading institutions in this and other countries in erecting laboratories especially adapted to such work. We are obliged to use our lecture rooms as rooms for laboratory work also, an arrangement which is for several reasons undesirable. Many students are obliged to work near each other, and are unable to give their work that close attention so necessary to the attainment of good results. Unavoidable noises distract them, and vibrating floors and walls continually disturb the adjustments of their instruments, making many exercises difficult, and some impossible. The best rooms we have are in the basement, and are poorly lighted, and worse in ventilation, and there is nothing better to be had in any of the university buildings. A suitable building is a necessity. I therefore urge the matter, and hope that it may be considered as a thing to be accomplished at the earliest possible day.

Very respectfully,

BENJ. F. THOMAS.

Ohio State University, October, 1886.

DEPARTMENT OF CHEMISTRY.

William H. Scott, President:

DEAR SIR: I herewith present this my fourteenth annual report of the chemical department of the university.

The number of students enrolled during the past year in the class of elementary chemistry was seventy one. The number in the analytical laboratories was twenty-eight. Total. ninety-nine.

The work done by these students was on the whole good, of better grade, perhaps, by those in the laboratory than in the elementary class. I am constrained to add that the time allotted to this study is not, in my opinion, sufficient for thorough work, and enter my protest against the action taken by the faculty at the close of the year whereby two-fifths of a term were taken from our working hours.

The facilities of the department for demonstrating the facts and for illustrating the theories in chemistry are steadily increasing in practical value. This is due partly to the fact that it has been found profitable to convert purchases made fourteen years ago into more useful goods, and partly to purchases defrayed from the general fund. The "conversions" above hinted at have about come to their possible limit, and hereafter we must not expect growth in this direction, unless from special appropriations or from donations.

Through the energy and zeal of my assistant, Dr. David O'Brine, the department has received (at a small charge for express fees and for bottles) several large collections of material exceedingly well-fitted to illustrate the lectures on organic chemistry, and also those upon pharmacy. We have as gifts from Parke, Davis & Co., and from Frederick Stearns & Co., of Detroit; from Allaire, Woodward & Co., of Peoria, Illinois, specimens of crude drugs amounting to several hundreds; and also from Mallinkrodt, of St. Louis, and from Powers, Wightman & Co., of Philadelphia, the products of such drugs (as the derivatives of opium, and the various barks), at least four hundred more, well-lodged in beautiful cabinets. The department is also obliged to Cobb, Armstrong & Co., of Cleveland, and to our fellow-citizens, Braun & Bruck and Kauffman, Lattimer & Co.

We have also received from Cosack & Co., Buffalo, and from the Photogravure Company, of New York, two fine suites of specimens illustrating the applications of chemistry to photography, photographic printing and lithography.

This enumeration shows that our material for illustrating the lectures on chemistry and its allied sciences has largely grown during the past year by the gifts of our friends. It will also receive large additions in the purchases made this year from the general fund. In each of the natural sciences it may be truly said that "seeing is believing," but in none with more convincing effect than in chemistry. Our means of illustration should in time include every substance that could by any possibility happen to be mentioned by the then lecturer.

Now, upon our part it is only decent that we should make a proper display of gifts thus sent gratuitously to us, and invite others. So far we have, as I think, kept our implied promise, and I hope the board will see its way clearly to supplementing these gifts by purchase so as to make ours a "museum of chemistry and its applications" full and complete. We have enough shelving for present needs, but the day is not far distant when it will be imperative upon the board to make our now unused attic the depository of the "curios" of such a museum.

The board took action, as I understand, for making the lecture room "sound proof" as regards the assaying room, but nothing has been done to bring about this very desirable end.

I renew my request for the early purchase of Liebig's Chemical Annals and for a further increase in our department library. I think it a noteworthy fact that our little case of books is in almost hourly requisition every day, and has proven itself to be one of the most important adjuncts to the teaching of chemistry that we have. I should be glad to have a collection of books dealing with the history of chemistry and of alchemy, or, in other ways showing the growth of our science and the interesting accidents and incidents connected therewith. As regards these items we have almost nothing on our shelves.

The year of study must, on the whole, be regarded as a profitable one. Dr. O'Brine has, as in former years, taken charge of the laboratory accounts and of the details in laboratory equipment. He has also taught the second year laboratory students in stoichiometry, and with his usual diligence and success.

With great respect,

SIDNEY A. NORTON.

Ohio State University, October 1, 1886.

DEPARTMENT OF GEOLOGY.

President W. H. Scott:

DEAR SIR: I herewith present my report of the department of geology for the last academic year.

The number of students enrolled in the several classes of the department during the year was 100. These students were distributed among the classes named below, as follows:

General geology, junior class, 2 terms	36 and 32
Economic geology, junior class, 1 term	10
Physical geography, 1st preparatory class, section A, 1 term	43
" " " " B, 1 term	11

Deducting students counted twice in this enumeration, the total number pursuing studies in my department was 90.

The necessities of the programme of the fall term of last year seemed to require that the second section of the class in physical geography should be placed at the same hour with general geology, and I was therefore unable to meet this section. I found, however, among our older students, a competent instructor for it, viz.: Mr. L. Westfall, to whose interest and fidelity in the work of instruction I desire to tively. This year the programme is so arranged that I am able to meet both sections of the class, as well as my regular college class in general geology.

The changes introduced into the curriculum at the close of the last year very materially affect this latter class for the present year. The subject of geology is now made optional for students in the arts and philosophy courses, and moreover, it is not to be elected by them until their senior year. Inasmuch as the present seniors have already taken geology, the new arrangement leaves my present class composed exclusively of juniors in the scientific and engineering courses. The class is, accordingly, less than half its usual size.

The geological museum has received a number of valuable additions during the last year. The most important of these additions consist of samples of drillings from the deep wells that are being sunk at the present time in almost all portions of the state. The list already embraces more than 1,000 separate specimens, and represents nearly, or quite, 100 wells. No specimens have been admitted in regard to whose authenticity there was any question. The specimens come from every section of the state, and they constitute in themselves a geological collection of rare interest and value. It is not at all probable that the present opportunity of making such a collection will be continued very long throughout the state, and consequently these sets of drillings will probably stand alone as an authentic record of our subterranean geology, and will acquire a constantly increasing interest and value in this connection.

The museum has also, during the year, come into possession of the relief map of the state, prepared for the New Orleans exposition, with a large outlay of time, money, patience. knowledge and skill, by Mr. W. C. Jones, of Cleveland. This is the first map, so far as I know, that has undertaken to represent on so large a scale, viz.: four miles to one inch, the relief of the state. While all such work is certain to advance by the method of progressive approach, so that new attempts, based on this representation, will attain greater accuracy, it is not at all certain that any attempt will very soon be made on so large a scale as that which this map displays. In any case, the first undertaking in such a field will always command an interest of its own. The map constitutes a most valuable accession to our means of representing the physical geography and geology of Ohio.

The work of entering the lists of specimens composing the museum in the department record will be entered upon at once, and will be prosecuted as rapidly as practicable, but the labor is a large and onerous one, involving the making of over 20,000 distinct entries, and it will necessarily occupy considerable time.

In my report of last year, I urged the desirability of securing, as soon as practicable, a suitable building for the geological museum. I repeat here the suggestions made in regard to this subject, inasmuch as these statements carry a compact presentation of the case in hand:

"The truth is that the museum needs a building for itself, and I trust that the time has now come when we may set about the work of providing suitable quarters for it, with good promise of success. We must distinctly recognize the fact that suitable provision will require considerable outlay. It is easy to lay down a number of points that should be observed in the construction of a museum building. (1) It should be built of Ohio stone. (2) It should be fire-proof. (3) It should furnish one example on the college grounds of a building properly constructed, heated and ventilated. (4) It should be large enough to provide for the natural growth and expansion of such a collection as it would contain.

"In regard to the first point, it is only necessary to say that our own state furnishes the largest amount, and, in many respects, the finest quality of building stone of any state in the union. Our museum should be made a proper representative of this great interest. Several of the leading varities should find place in its construction. I have but little doubt that the public spirit and business sagacity of our quarrymen would make it possible for us to obtain the best building stone of the state on unusually favorable terms. Competition might well arise among the great centers of production as to finding places in such a building, inasmuch as it would form a most conspicuous and permanent advertisement of the materials used in it.

"It needs no argument to show that a building designed for such use should be fire-proof, but in addition to the obvious reasons for this requirement, I may add that if a proper place were furnished by the university, adapted both to the proper display and permanent preservation of the materials entrusted to it, valuable collections of fossils and minerals would be sure to come to us. There is one cabinet of fossils in the state, to-day, on which many thousands of dollars and many years of enthusiastic labor have been spent, and which would be an ornament to any museum in the world. That I believe we could confidently count upon, if we could offer a safe and suitable repository for it."

I was glad to learn that the proposition, as stated, was favorably viewed by the trustees, as was shown in their making it prominent in their application to the state legislature for special appropriations. I hope that the subject will continue to command as favorable consideration. The need is constantly increasing, and I trust that the financial condition of the state will warrant an earnest and successful application to the legislature for the appropriation necessary for this work.

Several architects of Columbus and elsewhere made inquiry, after the publication of the report, in regard to the contemplated building. To all who inquired, I furnished such facts as I had at hand in regard to the purpose and character of the building desired, and as to its probable size and subdivisions. One of these architects, Mr. Elah Terrell, of Columbus, gave a good deal of attention to the subject, and finally prepared elaborate plans and elevations of a building adapted to this purpose.

Before deciding on the details of any plan of construction, I should count it necessary to visit several of the best arranged geological museums of the country, so as to make sure that we were availing ourselves of the best and latest experience in this line of work.

I would extend these statements and arguments further, if I thought that I should be heard for my "much speaking," but I am sure that the board of trustees, and yourself also, fully appreciate the necessities and interests involved, and stand ready to do all that seems practicable in securing the results desired.

I am very anxious to continue the present, or some similar arrangement with the state, by which I shall be able to devote six months of the year to the geological survey of Ohio, especially while the important developments of the present are going forward. The trustees have kindly granted me the necessary freedom for several years past. I trust that they will be willing to continue the arrangement on their part, in case the legislature makes the necessary provision for geological work.

Very respectfully,

EDWARD ORTON,
Professor of Geology.

DEPARTMENT OF BOTANY AND HORTICULTURE.

President W. H. Scott:

DEAR SIR: The undersigned, professor of botany and horticulture, has the honor to submit the following report of the work done and progress made in the department during the academic year 1885-86.

The whole number of students receiving instruction in botany and horticulture during the year has been 102. The following statement presents the subjects taught, together with the number of hours devoted to each, and the number of students enrolled in each class:

Course of instruction.	Number of students.	Lectures per week.	Hours of laboratory or field work.
Fall term.			
Economic and applied botany	9	4	2
Compositæ and gramineæ (sophomores)	29	1	2
Special botany	1	1	5
Winter term.			
Vegetable physiology and histology	7	3	2
Cryptogamic botany (sophomores)	26	2	1
Special botany	1	......	5
Spring term.			
Structural and systematic botany	57	3	2
Floriculture and landscape gardening	6	4	1
Advanced botany (gymnosperms and special groups) (sophomores)	27	1	2
Medical botany	2	....	4

I have classes in the following subjects the present term:

Economic and applied botany	10
Compositæ and gramineæ	28
Botanical laboratory (special)	2

The instruction given has consisted of lectures, laboratory practice and field work. The general plan pursued has not differed materially from that of previous years, except in an increase of laboratory and field work. The different courses in the department, twelve in number, are so arranged as to form a logical and comprehensive study of plant-life.

MEANS OF ILLUSTRATION.

Some additions have been made to the collection of illustrative material during the year. Several hundred species of dried plants have been added to the general herbarium, among the most valuable of which is a collection of fungi presented by Professor W. A. Kellerman, of the Kansas Agricultural College, and a valuable series of grasses of North America, from Dr. George Vesey, of the U. S. department of agriculture. Over one hundred species and varieties of living plants have been added to the stock of the green house and gardens. Minor additions have been made to the general museum, and to the apparatus for laboratory work.

An assortment of horticultural hand tools, budding knives, grafting implements, pruning shears, etc., has added much to the usefulness of this branch of the department.

THE EXPERIMENT STATION.

Under the new arrangement, whereby the professor of agriculture is the director, and the professor of horticulture the vice-director, the experiment station bids fair to be of still greater value as a means of training for students. It needs no special argument to prove that the station has won us friends among the farmers of the state, has silenced unfriendly criticism, and has increased the number of agricultural students.

The success that has attended the labors of the station has been largely due to the excellent facilities afforded by the university for carrying on the work.

If all the members of the faculty of the schools of agriculture and veterinary science should take a genuine interest in the work of the station, much more can be accomplished in the future than has been done in the past.

NEEDS OF THE DEPARTMENT.

1. The most urgent need is a propagating house. For the use of the gardens, the campus, and the main green house, plants must be continually propagated, both from seeds and cuttings. It is impossible to use the green house as a conservatory and for propagation at the same time.

Plants are now propagated in a very unsatisfactory way by means of a series of unsightly hot-beds situated on the slope just south of horticultural hall. If these could be replaced by a neat propagating house seventy-five or eighty feet in length, by twenty in width, it would add greatly to the efficiency of the department. This building could be heated by the boiler which now heats the green house, and would require no additional help for its proper management. A careful estimate shows that it can be built for five hundred dollars. The want of such a structure has seriously impaired the usefulness of the plant already at hand.

It is not an imaginary requirement, but an absolute and imperative need.

2. Another need is a series of botanical models, maps, and charts for illustrating the structure of the different parts and organs of plants.

An appropriation of one hundred dollars would meet the most urgent demands under this head.

ACKNOWLEDGMENTS.

Mr. W. S. Devol, who has been the efficient botanist of the experiment station for the past three years, has rendered timely and valuable assistance to the department in various ways during the past year. His place is now filled by Mr. Moses Craig, who is making a specialty of botanical studies.

Mr. W. J. Green still remains as superintendent of the gardens. I take great pleasure in bearing witness to his ability and fidelity.

Respectfully submitted.

WILLIAM R. LAZENBY.

Horticultural Hall, Ohio State University, Nov. 2, 1886.

DEPARTMENT OF ZOOLOGY AND COMPARATIVE ANATOMY.

Wm. H. Scott, President:

DEAR SIR: I have the honor to submit my twelfth annual report:

The enrollment in my various classes, during the collegiate year recently closed, is as follows: Physiology class of the shorter course in agriculture, eight; freshman physiology, sixty; sophomore zoology, twenty-eight; laboratory students, fifteen; the total enrollment was one hundred and eleven; five students being enrolled in more than one class.

The recent change in our courses of study, in virtue of which a large number of students is now required to perform the work in practical anatomy and physiology, which has hitherto formed a portion of the elective work in my department, renders all the more pressing the need which I have urged in previous reports of a more complete equipment of this department. In view of the fact that this work is now required, it is our imperative duty to furnish all necessary appliances for making the course as thorough and as practical as the time and attainments of the students will permit, while the great increase in numbers, under the new order, renders absolutely necessary the extensive duplication of many appliances. Unless, therefore, we would be compelled to recede from the deliberate and well-considered action of the faculty, the equipment of the department should be made adequate in this respect without delay.

What is true of the required work of the department is no less true of its elective work. Few important additions have been made to its equipment since a time when the number of collegiate students was less than half what it is at present, and it has never been more than barely adequate for our immediate and most urgent demands. It is at present, therefore (leaving out of consideration the fact that a well-ordered laboratory should recognize in its equipment the constant improvement going on in the appliances of biological research), wholly inadequate.

The claims made for this department in previous years are certainly no less forcible now than in the past; the new needs that have arisen from the changes referred to in the required work, render them doubly urgent. I trust, therefore, that you will join me in urging upon the trustees that they ask the legislature for an appropriation of $5,000 for the department of zoology, comparative anatomy, and physiology, as one of the most pressing needs of the university.

All of which is respectfully submitted.

ALBERT H. TUTTLE,
Professor.

Ohio State University, October 1, 1886.

DEPARTMENT OF CIVIL ENGINEERING.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report for the department of civil engineering for the year ending June, 1886.

The number of students enrolled was:

Fall term, 1885.

Sophomores, land surveying	15
Juniors, civil engineering	9
Seniors, sanitary engineering	4
Total	28

Winter term, 1886.

Sophomores, descriptive geometry	9
Juniors, lettering, platting and tinting	11
Seniors, shades, shadows and perspective	4
" plans and specifications	2
Extra class in stereotomy	2
Short agricultural course, field measurements	10
Total	38

Spring term, 1886.

Juniors, strains in framed structures	11
Sophomores, juniors and seniors, railroad surveying	22
Extra class in lettering, platting and tinting	1
Total	34

During the year 45 persons pursued studies in the department.

The additions to the equipment during the year have been: A "blue print" room, two steel tape measures, one 50 feet and one 400 feet long, two models of arches, a case for books and papers, and some shelving for models.

Two models have been made by students and left for the department.

The things most needed now are cases for the instruments, drawing-tables, models and pictures of engineering work, and, of course, books of reference.

At its last meeting I invited the Ohio society of surveyors and civil engineers to make this department a place of deposit for its library, the library to be returned to the society when desired, but while here to be used, under proper rules, by the engineering students. The proposition was accepted, and the books, maps, papers, blanks, etc., are now in the department. The collection, although not large, proves to be very valuable and is frequently consulted by the students.

Very respectfully,

C. N. Brown,
Assistant Professor.

Ohio State University, October, 1886.

DEPARTMENT OF MECHANICAL ENGINEERING.

W. H. Scott, President:

Dear Sir: I respectfully present the following report for the department of mechanical engineering, for the year ending June, 1886:

First Term—Students in analytical mechanics, 21. Strength of materials, 6. Thermodynamics, 3. Mechanical laboratory, 19.

Second Term—Mechanics, 4. Technical drawing, 4. Prime movers, 2. Senior laboratory, 2. Mechanical laboratory, 19.

Third Term—Mechanism, 4. Machine design, 2. Millwork, 2. Strength of materials, 9. Mechanical laboratory, 18.

The machinery and appliances mentioned in my last report as having been ordered, are now received and are in place. Recent orders have been given which consume the entire balance of the legislative appropriation of $2,500 for that purpose. We thus add one new engine lathe, one universal grinding machine, one surface grinding machine, one tool grinder, one oil testing machine, three measuring machines, and one weighing scales, besides quite a variety of gauges and tools of precision. Also, shafting has been put up extending into the front room for operating testing machines; the oil tester being already connected with it.

These appliances greatly extend our means for illustrating, and making applications of mechanical practice. We now have the means for accurately measuring, and for accurately doing fine machine work. Students are given exercises in the use of these where pieces are carefully wrought out and accurately measured. One measuring machine reads direct to the ten-thousandth, and a few readings will average within the fifty-thousandth of an inch.

Among the further much-needed appliances may be mentioned a testing machine for materials of greater capacity as to force exerted and as to size of specimen. The present testing machine for this purpose is too limited for our purposes. An Olsen testing machine of about 100,000 lbs. capacity would serve very much better, the cost of which would be about $800.

Individual kits of tools for the lathes are also much desired, and of sufficient number to provide each student with an outfit which he is to have charge of while practicing with his lathe. The need of this is apparent from the fact that now, with tools largely in common, when a student is found using a bad-shaped tool the defect cannot be charged to him because it may be due to the carelessness of his predecessor in the use of the tool. It should be explained here, perhaps, that these lathe tools are formed from bits of steel forged to shape and ground, for the cut. A vast difference not only in the tool, but in the work turned out, is made by correct or defective grinding. Means for locating these defects with greater certainty are very desirable, so that they can be corrected promptly and efficiently.

Very respectfully,

S. W. ROBINSON.

Ohio State University, October 27, 1886.

DEPARTMENT OF MINING AND METALLURGY.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report upon the work in the department of mining and metallurgy for the past year ending June 28, 1886:

The advanced work of the department comprised classes in metallurgy, assaying, mining engineering, ore-dressing, and blow-pipe analysis and determinative mineralogy. I also teach a freshman class in mineralogy, which forms part of the general college courses.

The number of students in the above special classes was as follows:

Metallurgy	10
Assaying	3
Mining engineering	4
Blow-pipe analysis	8
Ore-dressing	4
	29

This list includes a number of students who were enrolled in more than one of the classes. Deducting these duplicates, there were 16 students in the special work of the mining engineering course.

The class in freshmen mineralogy numbered 44, so that the whole number of students in the various classes of the department during the year was 73.

Of the senior class, four received the degree of engineer of mines.

I would respectfully call attention to the fact that while the department of mining compares favorably with any of the technical departments in the university, both in the number of students and in the proportion of graduates, the expense of the department to the university is almost nominal. The salary of the professor in charge is in large part paid by the fees received for chemical work from the state board of agriculture and state geological survey. From the same sources came all the current expenses of the laboratory in which all the experimental work of the department is carried on.

In view of these facts, I hope the appropriation for the department for the current year may be liberal. There are various things that are needed to facilitate the work of teaching in the department The consumption of supplies by students in the assay laboratory amounts to nearly $100 a year, which leaves nothing whatever for the additions which, from time to time, should be made to the equipment, much of which is wearing out. $300 for "current expenses" would allow me to vastly improve the condition of the department in a number of little things that we at present manage to do without, but not without damage to the work of the students.

The appropriation for framing the projet drawings is partly expended, and a number of the last year's drawings are now being framed. These add much to the attractiveness of the rooms.

Respectfully submitted.

N. W. Lord,
Professor of Mining and Metallurgy.

Ohio State University, October, 1886.

DEPARTMENT OF DRAWING.

W. H. Scott, President:

Dear Sir: I respectfully submit the following report of the department of drawing for the year ending June, 1886:

First Term—Students in freehand drawing, 57. Projection drawing, 24. Special drawing, 2.

Second term—Students in freehand drawing, 54. Descriptive geometry, 13. Special drawing, 1.

Third Term—Students in freehand drawing, 46. Projection drawing, 17.

The total enrollment, deducting those twice counted, was 208.

The work of the year was very satisfactory, both in regard to the interest shown by the students and the quality of their work.

The students are required to leave a specimen of their work at the close of the year, so that in the course of a few years the department will have a good showing of its own work; and as some very fine pieces of work are left, I would deem it proper to ask a small appropriation for frames, in order to hang and preserve them.

The department is in urgent need of the following:

1st. Suitable drafting tables for the work in mechanical drawing As the tables at present in use are unfit for the work, and as many students have valuable instruments, there should be some way of locking them up securely and separately, which could be done with proper tables. The tables could be built in the city for $8 or $9 each, from drawings which I would gladly furnish. One such table should be provided for each student.

2d. As the time given to descriptive geometry is short, the work would be greatly facilitated by the addition of a set of J. Scroder's descriptive geometry models; in fact, they are almost indispensable. They would also be very valuable in the projection drawing work. The cost of a set would be about $125.

3d. As the copies for freehand drawing have been in use for some time, they have become worn so that new ones are needed. Additional ones should also be furnished for flat copy shading-work.

To supply this demand about $25 would be necessary.

4th. The room receives its light from three sides, and as it is necessary to have the light from one direction when shading from models and plaster casts, the windows should be provided with shades of a neutral color which roll from the bottom upwards, in order to control the direction of the light.

Very respectfully yours,

Jos. N. Bradford.

Ohio State University, October 9, 1886.

DEPARTMENT OF AGRICULTURE.

President Scott:

DEAR SIR: The following report of work for the past college year in the department of agriculture is respectfully submitted:

Two classes in agriculture and one in veterinary medicine have had daily recitations through the year. The first class in agriculture made a study of soils, fertilizers, drainage, fences, farm buildings, implements and machinery, crops, tillage, and farm accounts. The second class was occupied with the study of farm stock of all kinds, and of what belongs to their successful management. The number of students in these classes was seventeen.

The veterinary class numbered twelve, and was composed in part of young men whose purpose was to obtain a thorough knowledge of the sanitary management of stock in order to be able, so far as possible, to prevent disease and its consequent losses. They made a careful study of animals, both in health and in disease, and have endeavored to learn the nature of disease, its symptoms and varieties, and how to discriminate between its different forms, and especially to ascertain its causes. Another portion of the class was made up of young men who expect to follow veterinary medicine and surgery as a profession, and to pursue here the course of study offered in the veterinary department.

At the beginning of the past year sixteen of the new students registered for the short agricultural course, then but recently established. At the opening of the present college year the number of new students registered for this course is twenty. So prompt a response to the offer of a short agricultural course, inspires the hope that when the opportunities afforded by it are more generally known, the number who will desire to avail themselves of its benefits will be very largely increased. In two years, a bright young farmer, who has secured a fair common school education, may obtain an introduction to all those branches of science which especially relate to agriculture. And at the same time he will have an opportunity to become practically familiar with the methods pursued and the results obtained at the Ohio experiment station, which is located upon the university farm.

Yours sincerely,

N. S. TOWNSHEND,
Professor of Agriculture.

Columbus, October 30, 1886.

DEPARTMENT OF VETERINARY SCIENCE.

W. H. Scott, President:

SIR: I have the honor to submit here my annual report. When at the beginning of the fall term of last year the veterinary department was opened and the course of studies arranged, the clinic and the branches of veterinary science to be taught in the fourth or senior year were assigned to me. Consequently, as there were no seniors, but only irregular students, or students who had been in other departments, who would take advanced studies and come into my classes, the latter, necessarily, were small. In the fall term I lecture on contagious, infectious, and on epizoötic diseases to a class of five, and on surgical diseases to a class of four students. In the winter term forensic veterinary medicine was taken up instead of contagious, infectious, and epizoötic diseases, and as one of the students of the fall term, a graduate of the agricultural and mechanical college of Virginia, accepted a call as assistant professor of agriculture in said college, and another one had failed in his examinations and did not return, the number of students in this class would have been reduced to three, but a new student came in, and the class thus contained four students during the winter. The study of surgical diseases was continued during the winter term, and the number of students remained the same as in the fall; two old ones had left, and two new ones had came in. In the spring term the study of surgical diseases, which had been finished in the winter, was followed by principles of horseshoeing and veterinary obstetrics. In this term one new student came in, and the class would have consisted of five, but it was finally reduced to three, because one was called home by the sickness of his father, and another one left at the middle of the term on account of financial difficulties. The study of forensic veterinary medicine, not quite finished during the winter, was continued during the first weeks of the spring term, and then followed by toxicology. This class, which at the end of the winter term consisted of four students, was finally, at the close of the spring term, reduced to one, because one had failed in his examination at the end of the winter term, one had been called home to take care of the farm, and another, as already mentioned, left at the middle of the term on account of financial difficulties.

A free veterinary clinic has been held one hour every week day during the whole academic year, so as to afford the students an opportunity to gain practical experience. Over one hundred patients, affected with various internal and external diseases, have been presented for treatment. On account of these patients surgical operations have been performed. No deaths occurred, and all the animals treated in the clinic either partially or fully recovered. Their number, there can be no doubt, would have been much larger, if the existence of the free clinic and its advantages incidentally offered to the public, had been generally known. Among the number of cases treated were some very interesting ones. I will only mention one of partial paralysis caused by pressure upon the medulla oblongata, and a fistula leading into the colon. Both horses, after having been in treatment a few weeks, were discharged cured, and are perfectly well at present. Quite a number of sick horses and several head of sick cattle have also been examined and been treated by the class at the premises of their owners, and several surgical operations have either partly or wholly been performed by the members of the class.

At the beginning of the present (fall) term two of the old students returned, and four new ones came in. Several others signified their intention of coming—at least seven or eight corresponded with me, and others with yourself and Dr. Townshend; but it seems some of them did not feel able to comply with the requirements of admission, and others preferred to take a more superficial course elsewhere, and thus complete their studies in two terms. Of the old students returned, only one is at present entitled to senior standing, and as he took last year all the senior studies and passed in his examinations, there was no class prepared to take senior or fourth year's studies at the beginning of this term. Last year the study of veterinary anatomy (comparative and descriptive anatomy of domestic animals—horse, ox, sheep, pig, and dog) was insufficiently provided for, so this year, having no fourth year's branches, except the clinic, veterinary anatomy was assigned to me, and is now taught to a class of six students. It was also found that some other minor branches, for want of teaching force, could not otherwise be given as fully as they deserve to be, and in these I have now a class of four students.

The veterinary clinic opened this fall with bright prospects. Last year the people, it seems, were ignorant of its existence. This fall, however, it was advertised in the papers, and several patients are coming nearly every day. Up to date thirty-five horses have received medical or surgical treatment, as the cases required, and no deaths, so far, have occurred. The building for the clinics, too, is now in a much better shape than last year, and its present condition enables us to keep diseased horses or cattle in our stable for treatment. The veterinary dispensary, too, is in full operation, and not only enables us to furnish the necessary medicines for our patients, but also affords an opportunity to the students to receive practical instruction in the compounding and preparation of medicines. Since the beginning of this term nearly all the medicines used have been prepared by the students. A few more instruments, at a cost of not exceeding $50, will be needed.

Having to teach anatomy you will allow me to point out what is required to make the study of that most important branch of veterinary science as thorough as it ought to be. In the first place, the building erected for anatomical purposes must be provided with a good drain or sewer, with water, with gas, and with a stove or some other means of heating. Without a drain and without a sufficiency of water anatomical preparations and dissections cannot be made, because without them the strict cleanliness necessary cannot be preserved, and the place soon would become a nuisance. Besides that, the stench, in a very short time, even in midwinter, would become so great as to make any work impossible. Further, as the building is none too large for the handling of the carcass of a horse or of any other large animal, the partition must be taken out and the whole building be given up for anatomy work. Secondly, suitable material must be provided. Old emaciated horses—the best material to be had—and occasionally some other animal, afflicted, perhaps, with an incurable ailment, can be bought very cheap, particularly at the beginning of the winter. Hence, an appropriation sufficient to enable us to buy such suitable material whenever there is a chance, will be needed. The products of the anatomical work, such as skeletons and other preparations, can be made in such a manner as to make them worth more than twice as much as the money thus expended amounts to, and can be turned over to the veterinary museum. To do this, however, some implements and some other material, for instance, a large iron kettle, such an one as is required to boil the meat off the bones of a horse or an ox, a few drills and plyers, some brass wire, iron rods, and foot-boards for the skeletons, will be needed. Two ends are thus gained at the same time. The veterinary museum will receive valuable specimens, and the students, while assisting in putting up skeletons, and making other anatomical preparations, will receive practical lessons in anatomy, which more than anything else will make them familiar with the structure of the animal organism. A thorough and accurate knowledge of the anatomy of an animal organism can be obtained only by studying the single parts as they exist in nature, and not by charts and imitations, valuable auxiliaries though they may be. Hence, not only skeletons but also other preparations, for instance, of muscles, blood vessels, nerves, etc., are requisite to give thorough instruction in anatomy, and are needed as a means of illustration in the lectures on myology, splanchnology, angiology, neurology, etc. To make such preparations, however, requires much time and labor, and therefore a prosector is needed. Last term I asked for an appropriation of $100 for a prosector to be employed. Probably this appropriation has been made; if not, I very respectfully ask again to allow that sum for the purpose stated. The prosector not only would have to make the preparations to be used in the lectures, but also have to superintend the anatomical work done by the students. Mr. Mark Francis would be a suitable person to be employed as prosector.

This money, and also that to be spent for the purchase of material and for the necessary tools, etc., if nothing else is available, might be taken from the fund for the veterinary museum, because full value in skeletons and other permanent preparations can and will be returned to the latter. Moreover, I think it is far better to prepare the specimens intended for the museum in our own veterinary department than to purchase them at high prices elsewhere. If they are made here, they are on that account of more interest and therefore more valuable, and at the same time cheaper.

The veterinary course, at present, is four years, or three years for students who come well prepared, and this is what it ought to be, because thorough instruction in all the various branches of veterinary science cannot be given in a shorter time. But a student who studies four years in a college or university, and satisfactorily passes his examinations, should receive a suitable degree. If no degree is conferred, but very few young men able to comply with the requirements of admission will be willing to take a four years' course, especially as in several other institutions a degree can be obtained in two *terms*. I therefore ask that in our institution the same degree be conferred upon our veterinary students on the completion of a full course as that given in the University of Pennsylvania and in Cornell University, New York, viz.: doctor of veterinary medicine. A degree of V. S., as has been proposed, is, to say the least, of very doubtful value in the state of Ohio, because in this State there is no law whatever that prohibits anybody from calling himself a veterinary surgeon. If the degree of M. V. D. (*medicinal veterinarian doctor*) is given, more well qualified young men will come and be willing to take a full course; if not, their number will be few, besides that the conferring of such a degree will tend to raise the study of veterinary science to the same dignity as that of human medicine. Still, I do not expect that the number of students willing to take a four years' course will ever be very large, at least not during the next few years, but I feel confident that a large number will come, if at the same time a short course, corresponding to the short agricultural course is established for the benefit of such young men as desire to become stock-breeders. In this course, if established, no degree should be given, but only a certificate bearing testimony that the holder has pursued certain studies and passed a successful examination therein. This course should embrace most of the fundamental, but none of the advanced studies, except, perhaps, contagious infectious and epizootic diseases, principles of horse-shoeing and veterinary obstetrics.

When last summer the Ohio agricultural experiment station was organized, and more closely connected with the Ohio state university, I was appointed veterinarian of the station. As such, I have, since August, not only answered several inquiries in regard to diseases of animals, but also undertaken experiments for the purpose of ascertaining the true cause or causes of some infectious diseases, with a view of devising rational and effective means of prevention. The principal line of experiments, commenced in August, was undertaken for the purpose of ascertaining the real cause of swine-plague or so-called hog-cholera. This investigation, not yet completed, necessitates considerable microscopic work, and very careful observation and experimentation; it therefore requires nearly all my time not spent in the class-room and in the preparation of my lectures. The results so far obtained are already very interesting, and, I trust, will prove to be of great practical benefit to the swine industry of the country, when completed. But not only this, the work and the experiments themselves, while going on, are very instructive to my students, and give them an insight into the nature and the working of the morbid process of infectious diseases, for I not only inform them of what is done, but require them to assist me in my work.

Two other lines of investigation, one in regard to worm diseases of sheep, but particularly in regard to the stomach-worm of sheep, strangylus contortus, and one in regard to the vitality of bacillus anthracis, if shut off from air, light, moisture, and any nutritive medium, have been closed, at least for the time being. As to the former, a report has been handed in to the director of the experiment station, and as to the latter, a report is in course of preparation.

Very respectfully submitted.

H. J. Detmers.

Ohio State University, October, 1886.

DEPARTMENT OF AGRICULTURAL CHEMISTRY.

W. H. Scott, President:

Sir: The undersigned respectfully submits the following report of the department of agricultural chemistry for the year ending June 23, 1886.

The number of students enrolled in the class in agricultural chemistry of the short course was as follows: Fall term, 17; winter term, 13; spring term, 11.

Besides this class there were two students in the fall term and one in the spring term doing advanced laboratory work in veterinary materia medica and toxicology.

The lecture-room work of the class in agricultural chemistry embraced the elements of chemistry, and the chemistry of the non-metals for the fall term, organic chemistry for the winter term, and the applications of chemistry to agriculture for the spring term.

The laboratory work of this class consisted of a complete course in qualitative analysis for the fall and winter terms, and the quantitative analysis of salts, minerals, manures, fertilizers, water, and feeding stuffs for the spring term.

The only improvements to be mentioned are the building of a specimen case in the lecture-room, a small book-case, and the purchase of some additional apparatus.

Besides the class work in this department, chemical investigations have been carried on in the following directions:

1. Analysis of feeding stuffs, as beets, mangel wurzel, carrots, corn-fodder, oat hay, oat straw, linseed meal, old and new process; white and yellow corn, oat hulls from oat meal manufactory. (See reports Ohio agl. exp. station, 1884, 1885 and 1886).

2. Analysis of manures and fertilizers. (See reports Ohio agl. exp. station, 1884, 1885 and 1886).

3. Analysis of drinking water. (See Ohio agl. exp. station reports, 1884, 1885 and 1886).

4. On the microscopic examination of butter and its adulterations. (See proceedings American society of microscopists, 1886. Ohio agl. exp. station reports, 1885 and 1886.

5. Experiments with soil, devised to determine the wanting ingredients of the soil for farmers in all parts of the state, in order to guide them in the purchase of commercial fertilizers. (See reports Ohio agl. exp. station, 1885).

6. Analysis of muck, with directions for making the bed fertile. (See Ohio agl. exp. station report, 1886).

7. Analysis of cheese, full milk cheese and Chicago flats. (See report Ohio agl. exp. station, 1885).

8. Chemical analysis of butter, 69 specimens were examined, 37 of which were adulterated, and 32 genuine. (See report dairy and food commissioner, 1886).

9. Vinegars. Of 12 commercial vinegars sold as cider or fruit vinegar, 2 specimens were found to be genuine, and 10 specimens fraudulent. (See report dairy and food commissioner, 1886).

Very respectfully,

H. A. WEBER.

Ohio State University, October 20, 1886.

DEPARTMENT OF PHARMACY.

President W. H. Scott:

DEAR SIR: I enclose herewith the first annual report of the department of pharmacy. The year began with a class of ten, which number was considered encouraging. The work throughout the year has been satisfactory. The students have taken a decided interest in the laboratory work in particular, having had constant practice in the preparation of pharmaceuticals, and having worked in the quantities usually prepared by the dispensing pharmacist. As this work is usually conducted in laboratories of this kind, it is in such small quantities as will not clearly illustrate the characteristic action of the various drugs. In this we have a decided advantage.

The department is indebted to Professor Weber for kindness shown in permitting the use of his laboratory, and in the loan of apparatus; also, to Professor Norton, who has placed his cabinet at our disposal and frequently aided by the loan of apparatus, etc. I would urge the necessity of providing permanent quarters for this department, and in view of the probability of its rapid growth it would seem wise to make such provision on a scale sufficiently large to meet any reasonable demand. Already the space provided by Professor Weber is insufficient, and no more is available.

We have a moderate supply of the more common pharmaceutical apparatus, and a small amount of material, but as we advance much more will be needed. Considerable headway has been made in the collection of a cabinet of Galenical preparations made by the students themselves, and it is the intention to make this complete as rapidly as possible.

With the request that you will bring the needs of this department to the attention of the board, I remain yours truly,

GEO. B. KAUFFMAN.

Ohio State University, November 5, 1886.

DEPARTMENT OF HISTORY AND ENGLISH.

William H. Scott, President:

SIR: I have the honor to submit the following report of the department of history and English language and literature, for the year ending June 23, 1886.

The number of students enrolled in the various classes in the department was:

HISTORY.	1ST TERM.	2D TERM.	3D TERM.
English and modern European (senior)	3	2	2
Mediæval (junior)	10	7	5
United States Constitution	...	11	9
Preparatory, United States	19	26	3
Preparatory, general	20	9	21
Totals	52	55	40
ENGLISH.			
Advanced literature	13	10	10
Anglo-Saxon and English literature	16	11	11
Rhetoric (sophomore)	24	22	18
Preparatory, rhetoric	9	23	19
Totals	62	66	58
POLITICAL ECONOMY	18	17	15

Deducting names twice counted, the total enrollment in the history classes was 122, as against 108 in the year previous; in the English classes 104, as against 90 the previous year. In addition to the foregoing work, one hour each week was devoted to rhetorical exercises, requiring the presence of all seniors and juniors. The second preparatory class was also required to devote one hour a week to composition and essay writing.

The size of the advanced classes in history is explained by the fact that as the curriculum stood during the year, students in one course only were given any opportunity to enter these classes. By the changes in the curriculum made by the faculty at the close of the year, this work in advanced history was thrown open to seniors and juniors in the arts, philosophy and science courses. This change, the desirability of which was shown in my last report, has already resulted in a largely increased enrollment in the history classes for the present term, a fact which, as the work is still only an elective for many of the students, is proof that the demand for historical studies was not before met. By the same change I am now enabled to offer to our advanced students a new course designed for original study and research in the institutional and financial history of the United States.

The courses in English have also been remodeled and better adapted to the needs of the students. The most important change has been the reshaping of the freshman studies, so that every freshman, in whatever course he is, receives a year's training in theoretical and practical rhetoric.

I have the honor to make grateful acknowledgment of the appropriation of five hundred dollars from the library fund, for the purchase of historical works, with particular reference to American history. The additions which I am thus enabled to make to our historical equipment will not only add value to our library but, what is of far more greater importance, will enable our students to gain broader and better knowledge of the subjects before them. While I am deeply appreciative of the kindness with which my appeal of last year was met, I cannot refrain from saying that but few, if any, of the departments of the university are even now so poorly equipped. I can but repeat the words of the late Professor Short, that "the highest success of the department is rendered impossible by the neglect to place within the reach of students a limited number of important works on history and political science." The same is true with regard to copies of the works of *standard* and *classical* English writers, and of treatises upon English literature, general and special, and of general literature. At the risk then of appearing presumptuous, I would respectfully ask that as large a sum as the financial condition of the university will warrant be devoted during the coming year to supplying these imperative needs.

The appropriation of forty dollars for the purchase of atlases and wall maps, though smaller than was desired, places the department in much better condition in that regard, and is duly appreciated.

Very respectfully,

GEO. W. KNIGHT.

Ohio State University, October, 1886.

DEPARTMENT OF FRENCH AND GERMAN.

W. H. Scott, President:

SIR: I have the honor to submit the annual report of the work in my department for the year 1885–86:

The enrollment for the first term was:

Sophomore French	36
Freshman French	46
Second Preparatory German	12
First Preparatory German	41
	135

Deducting five counted twice the total number of different students was 130.

The enrollment for the last term was:

Sophomore French	29
Freshman French	28
Second Preparatory German	12
First Preparatory German	28
	97

Deducting three twice counted the total number of different students was 94.

The course of study, as outlined in the catalogue of last year, was pursued.

The first preparatory German had to contend against two obstacles that hindered a rapid progress in that study. One was, the majority of the members had not sufficient knowledge of English grammar to enable them to grasp readily a foreign language. Another was, some of the students were too young. These two conditions hampered those who were prepared for the work. There is no branch of study in the preparatory years that would receive greater benefit from a higher standard at the entrance examinations than the first year German.

The freshman French still uses, even at the beginning of its work, a grammar that is in the French. This is rather difficult for the student at first, but as the grammatical terms and expressions are readily acquired the difficulty is of short duration, and in mastering it he learns to read easy French.

The work of the sophomore French was, on the whole, carried on in a satisfactory manner. The majority of the class showed commendable zeal in doing the library work that must needs be done in the study of the literature in connection with the lectures in the class-room. The text-book used was Demogeot, which is also in the French language.

The department very cordially welcomed the division of its work that took place last June, when the two departments, the French and the German, were instituted. The usefulness of the instruction in both languages will be greatly promoted by this division. A word is needed as to a plan inaugurated by this change. The sophomore French has been formed into two sections, one for the science and engineering courses, the other for the philosophy course. In compliance with a request the science section will read some French of the sciences.

It would, however, seem unwise to spend the entire sophomore year in such work. The French of scientific works offers no very great difficulties; the French of historical or philosophical works is much more difficult. The student who can read the latter will have no trouble in reading scientific French. But it does not follow that he who can read scientific French will be able to read satisfactorily the French of general literature Hence, to gain a perfect reading knowledge of the language the student should not be restricted to one particular style or class of literature, especially to a style in which the diction is limited and unvarying.

In a word, he who has difficulty in reading scientific French has no knowledge of the language that is worthy of mention.

Respectfully submitted.

ALICE K. WILLIAMS,
Instructor in French.

DEPARTMENT OF GERMAN.

The object of the study of German is, as it must be in any collegiate institution, to give to the student the ability to read any German book, whether it be a scientific work or a master-piece of German literature. This is the only aim consistent with the character of collegiate work, and the only one attainable in the limited time allotted to the study. To carry this point all efforts must be concentrated upon it, and no time can be given to an exhaustive study of grammar. It is expected that the student will master the essentials of German grammar in the first year, and that grammatical studies in the second year will be limited to a brief review of the principal topics. The instruction in the first year, or years, will be the same for all classes, while later on special work will be provided for those who desire to study German literature, and for those who wish to do scientific reading.

FIRST YEAR.

1st Term. Cook's Otto's German grammar. (Brandt's German grammar will be substituted next year). Andersen's Bilderbuch ohur Bilder, or some equivalent, will be read.

2d Term. Minna v. Barnhelm. Grammar continued.

3d Term. Some short German novel. Grammar finished.

SECOND YEAR.

1st Term. Review of grammar by topics. Hauf. Das Bild des Kaisers.

2d Term. Schiller's prose, or some play.

3d Term. Gœthe's Gœtz v. Berlichingen.

German has heretofore been limited to the first and second preparatory years, and to one elective in the junior and senior years of the course for bachelor of philosophy.

The following changes will be made next year: German will be placed as an elective into the junior (5) and senior (3) years of the course for bachelor of arts.

The five hours' elective in the senior year of the course for bachelor of philosophy will be reduced to three. A special class will be formed for those electing German in the senior year of these two courses. The work of this class will consist in advanced reading, and a systematic study of German literature. The last term will be largely devoted to the reading of Faust, and lectures upon the same. Students who enter the preparatory department with a view to taking the degree of bachelor of science, will take German, and will, later on in the sophomore year, be offered an elective two hours a week in scientific reading. Those who enter the college on Latin will take German in the freshman year five hours a week, and in the sophomore year two hours a week.

ERNST A. EGGERS.

DEPARTMENT OF LATIN.

President Wm. H. Scott:

DEAR SIR: I have the honor to submit the report of the department of Latin for the academic year ending June 23, 1886.

The students registered in this department during the year were classified thus:

First preparatory	Latin	26
Second "	"	31
Freshman	"	22
Sophomore	"	19
Junior	"	11

The first preparatory class was assigned to Mr. McCoard, the other classes were taught by myself. In all classes a good degree of interest was manifested in the authors selected for study, and the work of the year was creditably done. Better results, with no loss of interest, will confidently be looked for as soon as the recently imposed requirement in Latin for admission shall produce its due effect in raising the standard of scholarship in this department.

At first, perhaps for several years, (though the results of the experiment are thus far unexpectedly favorable), it is likely that the number of applicants will be less than with a low standard of admission, yet I misjudge the spirit of classical students if raising the standard do not prove attractive as well as beneficial. The most desirable students are drawn by a high standard of attainment quite as strongly as by large opportunities. We lose some students, and fail to attract a larger number because of an impression that the study of the classic languages is not properly fostered here. This misapprehension will, we may hope, soon be removed.

I believe the life and civilization of the Greeks and Romans might be brought much more vividly before the minds of students by a frequent and systematic use of maps, plans, coins, photographs, and other forms of illustration, by the creation, in short, and employment of a classical museum. The value of the graphic method in modern dictionaries and cyclopædias is beyond question; illustrations will be equally useful in conveying a proper idea of the less familiar objects of ancient life.

The walls of our lecture-rooms should be utilized for this purpose. Good engravings and other forms of artistic representation play an important part in education, especially in an education which is largely based upon a study of the language and life of the Greeks and Romans. I venture to hope that the professor of Greek will find it possible to give some instruction in the history of ancient classic art—a field in which many of the larger colleges are already at work.

A small sum could profitably be used at once in providing some articles of illustrative equipment for the Latin recitation room. I shall be glad to expend $50 in this way.

Very respectfully,

SAMUEL C. DERBY,
Professor of Latin.

Ohio State University, October 26, 1886.

DEPARTMENT OF GREEK.

W. H. Scott, President:

DEAR SIR: I have the honor to submit my annual report of the work done in the department of Greek for the college year ending June, 1886.

The enrollment in the four college classes in Greek for the year was as follows:

Senior Greek	8
Junior Greek	13
Sophomore Greek	9
Freshman Greek	9
Total	39

The course of study, as laid down in the catalogue, was in the main adhered to, except that the Philippics of Demosthenes were substituted for his Olynthiacs in the third term of junior year. The difficult Triumphal Odes of Pindar were, for the first time in the history of the college, read by the senior class, with gratifying success.

My class-room work included three hours a week with each of the three upper classes, and five hours a week with the freshman class; in all, fourteen hours weekly through the year.

I am able to report a high average of attendance and interest on the part of the students in my department.

Very respectfully,

J. R. SMITH,
Professor of Greek.

Ohio State University, October 12, 1886.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

W. H. Scott, President:

SIR: I have the honor to make the following report of the department of the university under my charge during the past year. The cadet battalion at the beginning of the year numbered about one hundred and fifty, but in the spring term the daily attendance did not average over seventy or seventy-five. There was not as much battalion drill as usual, but company and company skirmish drill were practiced until cadets were familiar with every detail. Owing to the size of the battalion a few cadets only were detached in the spring term long enough to learn the manual of the piece and some foot movements in artillery drill. The battalion now numbers about one hundred and fifty-nine, but the same process of gradual diminution will undoubtedly go on this year, as it is composed almost entirely of lower classmen, who are continually leaving the university.

The discipline is very good and the interest manifested greater than usual. The members of the battalion are now engaged in organizing a band, which, if successful, will greatly promote its interests and be a pleasing feature of the university. I would again recommend that steps be taken as soon as possible to urge an appropriation from the legislature for the erection of a separate building to be used as a gymnasium, armory and drill hall. I would request that the board of trustees be informed that the faculty has been utterly unable, after much consideration, to arrange hours of study so as to permit sophomores to drill. The regulations now state that all students except seniors and juniors are compelled to attend drill. They need to be enforced or amended. It is useless to say more concerning this matter.

I am very respectfully,
Your obedient servant,
A. P. Blocksom, *1st Lt. 6th Cavalry,*
Professor Military Science and Tactics.

Ohio State University, October, 1886.

THE LIBRARY.

Wm. H. Scott, President:

Dear Sir: I have the honor to present the following account of the library for the last college year:

It gives me pleasure to report a year of decided growth in this important department of the university.

The number of volumes in the library, June 23, 1886, was 6,844, of which 1,485 had been added by gift or purchase during the academic year ending at that date.

The total given above (6,844) does not include pamphlets whose number may be estimated at 2,000.

Considerable additions have been made to the collection of congressional documents; among these were a set of the Annals of Congress, 42 vols. 8°, which was purchased, and many numbers of the Congressional Record and Congressional Globe, which were received from the department of the interior. This portion of the library will soon be materially strengthened by filling gaps that still exist in the various series. In this work valuable aid and suggestions have been received from the professor of history and English.

Next in importance, perhaps, to books illustrating the history of the United States, is a complete collection of works treating of the history and antiquities of Ohio; less expense and time is required for this object than will be in the future. Much valuable material has been lost through ignorance or neglect. Many books even now have a scarcity value which will be enhanced year by year.

PERIODICALS.

The number of periodicals is much larger than in preceding years. Some periodicals which had been ordered have not been received, and thus annoyance has been caused to several departments. It is hoped that a more satisfactory arrangement can be made for the ensuing year.

The library has a complete set up to 1885, and in most cases to date, of each of the following:

North American Review, American Journal of Science, Nature, Science, Contemporary Review, Nineteenth Century, Magazine of Western History, American Journal of Philology, Edinburgh Review, Quarterly Review, Andover Review, and *Atlantic Monthly.*

In addition to these the following were kept on file and the more important will be bound and added to the library:

The Scientific American, Popular Science Monthly, American Machinist, Van Nostrand's Engineering Magazine, Engineering News, Engineering, Sanitary Engineer, Railroad Gazette, Electrician, Chemical News, Quarterly Journal of Geological Society, Geological Magazine, Observatory, Veterinary Journal, Botanical Gazette, Journal of Botany, Bulletin of Torry Botanical Club, Breeders' Gazette, Rural New Yorker, American Dairyman, Jersey Bulletin, Astronomische Nachrichten, Rundschau, Historische Zeitschrift, Biolog Centralblatt, Magazine of American History, Fortnightly Review, Spectator, Athenæum, Nation, Mind, Journal of Mental Science, Philosophical Magazine, Princeton Review, Journal of Statistical Society, Archiv. d. Mik. Anatomie, Jahresbericht (Bursian), and *Zeitschrift An. Chemie.*

The Journals sent free were *City and Country, American Manufacturer, American Engineer, Columbus Record, Watchman, Christian Register,* and *Patent Office Gazette.*

The partial set of the *Magazine of American History, Popular Science Monthly, Fortnightly Review, Nation, Journal of Chemistry,* and *Van Nostrand's Engineering Magazine,* will be completed as soon as circumstances permit.

It seems to me very desirable that complete sets of several foreign scientific periodicals, much needed by the scientific departments of the university, should be added without farther delay. Full sets are becoming, year by year, more scarce and costly. A considerably larger appropriation will be needed for this purpose than was received last year. The ordinary appropriation is barely sufficient to meet the ordinary wants of the score of departments in the university and adds, at most, few books annually to each. The cost of periodicals, binding, etc., items now of considerable size, leaves small margin for unusual expenditures in any direction. Five thousand dollars, at least, ought to be expended upon the library in 1887, and annually for the next ten years in order to put it upon an equal footing with the libraries of the majority of good colleges in this country, many of which are growing more rapidly than ours in books and a great variety of appliances which save the time and serve the convenience of readers.

The work of cataloguing new books is kept well up to the accession list according to the plan adopted three years ago.

The library is rapidly reaching a size which will make it necessary to make other provision for its preservation and proper use. The present reading-room is too small, especially during the colder months, when it is much used as a place for study by students who spend there the intervals between recitations. The labor of directing the growth and use of the library, so far as it falls upon the librarian, is greater than I can (with proper performance of the duties of my *own* department) satisfactorily perform. The library ought, presently, to have fire-proof quarters and a well-trained head who can give it his entire attention.

Miss E. C. Lehner has rendered good service as assistant librarian for the past year.

Gifts of books have been received from various friends of the university, and have been duly appreciated.

Respectfully submitted.

SAMUEL C. DERBY,
Librarian.

Ohio State University, October 30, 1886.

THE UNIVERSITY GROUNDS.

President W. H. Scott:

DEAR SIR: I submit herewith my first annual report of the university grounds. One year ago when appointed to the position of superintendent, I took occasion to point out some general considerations and make what appeared to me to be some practical suggestions. It was then stated that the policy in regard to the management of the grounds should be to make them as far as possible both *useful* and *attractive*. It was urged that they should furnish agreeable means of recreation and physical culture for the whole student body; that for students in the department of botany and horticulture they should be so managed as to have a special educational value, and be increasingly and permanently useful. But a *beautiful* as well as a *useful* campus is of great value to the university. It furnishes an example of good taste that cannot fail to favorably impress all visitors. More than this, it exerts a powerful influence for good upon students who spend here so large a portion of their time during these years when the mind is marvelously influenced and impressed by associations and surroundings,—years when the æsthetic tastes are developed and character is formed.

SPECIAL IMPROVEMENTS.

Among the improvements that have been planned and executed, the most valuable is the completion of a substantial brick walk extending from High street to the main building, and from thence to the mechanical and chemical laboratories. Among the minor improvements worthy of mention, have been the grading and seeding of the ground directly in front of the residence of Professor Knight, and the filling up and seeding of the road-bed which formerly crossed the campus just east of horticultural hall. Some changes have been made about the spring and lake, and the greater part of the roads and walks have been regraveled.

THE LAWN.

This has been greatly injured by the severe weather of the past two or three winters. This injury, together with the ravages of the larvæ of the May-beetle, have completely killed the grass in patches of greater or less extent throughout the whole campus. Steps are now being taken to have these patches, and the whole lawn as far as possible, liberally top-dressed with well decomposed stable manure, and at the proper time thoroughly harrowed, carefully seeded and rolled.

TREES, SHRUBBERY AND HEDGES.

The principal planting has been an evergreen hedge on the boundary between the campus and the vegetable and fruit gardens. In planting this hedge three varieties of evergreens were used, viz.: Norway spruce, arbor vitæ, and hemlock spruce. The first two varieties have made a very satisfactory growth. A small per cent. of the plants of the latter have died. These will be replaced next spring. It is the intention to keep this hedge trimmed low so that the view will not be obstructed.

FLOWER BEDS.

The flower beds and borders were greatly extended the past season. Quite a number of the designs were originated by the students in floriculture and landscape gardening. The beds were well cared for and elicited from numerous visitors commendatory words. I have already stated that the most imperative need of the department of botany and horticulture is a propagating house. With such a structure the floral adornment of the campus could be greatly extended with slight additional expense.

SEWERAGE.

Until the past spring all the sewerage from the principal university buildings was discharged into a shallow pit, at no great distance from the main building. Here it not only offended the eye and polluted the atmosphere, but rendered a large tract of land useless by its unregulated overflow.

As this land was needed for experiments in horticulture, the experiment station very generously bore all the expense of taking up and extending the sewer as well as for providing for its discharge into a properly constructed pit.

ATHLETIC GROUNDS.

In my last report the suggestion was made that the superintendent of grounds be authorized to put such portions of the campus as are used for athletic sports in good condition just before the opening of each college year, and that the care of these grounds thereafter be left to the various organizations that use them. In almost every college some provision for the physical development of students is made. Many institutions with a smaller endowment than the State University, have well-equipped gymnasiums. Physical culture is being regarded more and more as a necessary requisite for the best intellectual development. Health is the student's best capital, and a full measure of health can only be maintained by wholesome, invigorating exercise. As long as the university has no gymnasium, a reasonable degree of encouragement should be given to field sports.

One hundred and fifty dollars judiciously expended will keep the ball ground, tennis courts, and the track of the general athletic grounds in excellent order. I respectfully ask that this amount be appropriated for the purposes named.

RECOMMENDATIONS.

1. The placing of a number of street lamps along the main entrance from High street to the main building.

2. The laying of a brick walk from the main building to horticultural hall.

3. The replacing of all diseased, dead, and missing trees along such portions of High street and Woodward avenue, as border on the university estate, and the planting in the same manner of Woodruff avenue.

4. The sowing of seeds in nursery rows in the garden of such ornamental trees and shrubs as may be needed from time to time for planting upon different portions of the university estate.

5. The construction of a fountain at the lake to be supplied by the water-tank in the main building.

6. The planting in groups at suitable points on the campus, different species and varieties of trees of the same family,—the same to constitute the beginning of a well-planned arboretum.

ACKNOWLEDGMENTS.

I wish to testify to the faithfulness with which Mr. James Kelley performs his work. A better man for the place could not be found. Mr. C. A. Roth is also deserving of much credit for the industry and taste displayed in caring for the grounds about horticultural hall.

NEEDS OF THE DEPARTMENT.

With the wisest economy it is difficult to do justice to the requirements of the grounds, with an appropriation of less than $1,000.

Respectfully submitted.

WILLIAM R. LAZENBY,
Superintendent of Grounds.

FARM DEPARTMENT.

Dr. N. S. Townshend, Professor of Agriculture, Ohio State University:

SIR: Herewith the undersigned submits to you the report of the farm department for the year ending November 1, 1886.

Statement A gives, as heretofore, an exhibit of the general operations of the farm during the year.

Statement B shows the receipts and expenditures of the farm during the year, as condensed from the day-book and cash account, accompanied with proper vouchers, all of which are herewith submitted as part of this report.

All accounts against the farm to date have been paid. There are also appended a few remarks in reference to crops, and a few suggestions as to much needed improvements, for which the sum paid into the treasury could wisely be employed, if yourself and the honorable board of trustees should see fit.

Very respectfully,

H. A. WEBER,
Manager.

Ohio State University, November 1, 1886.

STATEMENT A.

Items.	On hand Nov. 1, 1885.		Bought.		Produced.		Consumed.		Sold.		On hand Nov. 1, 1886.	
	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.
Horses	9	$1,190 00									9	$1,190 00
Cattle	47	4,904 82	5	$225 00	23	$430 00			28	$700 45	47	4,900 00
Hogs	45	200 00			37	282 70			28	82 70	54	400 00
Implements		3,162 20	1	40 00								3,202 20
Corn	2,586 bu.	775 80			3,192 bu.	959 60	2,566 bu.	$760 00	820	263 00	2,392 bu.	700 00
Wheat					1,012 bu.	811 94	66 bu.	72 20	946 bu.	769 74		
Oats					352 bu.	88 00	100 bu.	25 00			252 bu.	63 00
Beets	22 tons.	88 00			51,6	206 40	21½ tons.	86 00	2 tons.	16 60	50 tons.	200 00
Hay	42½ tons.	425 00	6 tons.	61 09	88 tons.	880 00	63½ tons.	635 00	3 tons.	30 00	70 tons.	700 00
Fodder	1,580 shk.	316 00			1,277 shk.	255 40	1,580 shk.	316 00			1,277 shk.	255 40
Straw	25 tons.	75 00			50 tons.	200 00	25 tons.	75 00	12 tons.	60 00	38 tons.	152 00
Potatoes	16 bu.	5 60			50 bu.	20 00	16 bu.	5 60	50 bu.	20 00		
Milk										2,832 01		
Labor								2,944 86		432 84		

STATEMENT B.

RECEIPTS.

Cash on hand November 1, 1885	$207 93	
From sale of milk	2,797 31	
" " butter or cream	34 70	
" all other sources	2,802 31	
		$5,842 25

EXPENDITURES.

Paid for labor on farm	$1,375 18	
" " " in dairy	1,105 34	
" " " reimbursed	432 84	
" " " at clearing land	31 50	
" for repairs on barn and stable	54 23	
" " " " farm-house	41 50	
" " note with interest from Dec. 24, '85, to March 24, 1886	413 00	
Paid for hay tedder	40 00	
" " stock purchased for dairy	225 00	
" " hay, bran, blacksmithing and incidentals	581 49	
" into treasury of university	1,500 00	
" to W. S. Devol, cash on hand Nov. 1, 1886	42 17	
		$5,842 25

IMPROVEMENTS AND IMPLEMENTS.

In order to increase the size of the north island a man was employed during the winter months of last year to grub out and clear an adjoining strip of land, which is covered by sycamore trees and a thicket of undergrowth. About one acre of arable land, of excellent quality, was thus added to the island at a cost of $31.50. This strip was planted in Leaming corn, and produced about 70 bushels of good corn. The clearing of this land is extremely easy, as the soil is all of an alluvial nature, and the roots of the trees far below the surface.

The whole of the waste land east of the dyke should be reclaimed, and perhaps the wisest application of the accumulated earnings of the farm of the past year that could be made would be in this direction. Ten or fifteen acres of the very best land would be thus added to the farm, which now produces nothing but an annual growth of the rankest weeds, and is a perfect hot-bed for malaria.

The eave-troughs and spouting on the barn were blown off by the wind to such an extent, that a thorough overhauling was found necessary. The work was done by Aston & Huff, at a cost of $34.58. During the summer the floor in the north horse stable had decayed to such a degree that it became dangerous for the horses. The floor and timbers were removed and replaced by a pavement of hard brick. In order to prevent rats from burrowing under the brick floor and thus ruining it, cut-stone slabs were placed on edge around the inside of the sleepers. The space was then filled with coal ashes to the proper level. This was stamped and rolled to make it solid, then covered with fine sand, on which the bricks were placed on edge. The work was done by the farm hands, assisted by Mr. Kelly. Three thousand brick were used, at a cost of $15, and cut-stone slabs at a cost of $4.65. The floor has thus far proven entirely satisfactory.

It will be remembered that the plastering on the new addition to the farm-house was so poorly put on, that in a short time it began falling off the ceiling and walls. In order to make the room safe, it was found necessary to remove all the old plastering and replace it by new. A grate was also placed in the sitting-room, and the office kalsomined. The cost of these repairs was $41.50.

One hay-tedder, at a cost of $40, was purchased. This implement did admirable work in the curing of our clover and grass, which was very heavy the past season.

MANURE PIT.

An improvement greatly to be desired, both for the saving of the manure produced on the farm and for educational purposes, is a well constructed manure pit. The rudiments of the pit already exist in the barn-yard. But it should be deepened, walled and curbed, so as to exclude surface water, and the pavement commenced near the barn should be continued all around the pit, after the surface is properly leveled. The proper treatment of barn-yard manure and its value, should be impressed upon every farmer or farmer's son visiting the university, and nothing would do more good in this direction than a properly constructed manure pit, where none of the valuable constituents of the manure and other refuse matter would be wasted.

WHEAT.

Four varieties of wheat were raised on the farm the past season, Finley, velvet chaff, Martin's amber and valley. The sowing was done from the 16th to the 22d of September, the Finley and velvet chaff following wheat of the same variety respectively, while the Martin's amber and valley followed corn. The two former varieties received a top-dressing of barn-yard manure, the latter received no manure at all. The following tabular statement will show the number of acres and yield of each variety, the bushels being machine measure:

Variety.	Number of acres.	Total. yield.	Yield per acre.
Finley	8.25	263 bu.	31.9 bu.
Velvet chaff	7.00	214 "	30.6 "
Martin's amber	2.30	60 "	26.1 "
Valley	14.20	382 "	26.9 "
Totals	31.75	919 bu.	29 bu. av.

CORN.

The estimated yield of corn the present year is 3,192 bushels. Two varieties were planted, the white corn grown last year and Leaming. Fifty acres in all were raised. For reasons given in the last report, only the north island was planted with Leaming corn. Contrary to expectation, the yield and quality of the Leaming were very satisfactory, showing that for the past season at least this highly improved variety of corn can be grown successfully on the richest bottom land.

BEETS.

The beet crop this year was excellent. Two varieties were planted for the sake of comparison, the Ohio agricultural experiment station aiding in the work.

1.22 acres were planted with Lane's imperial sugar beet. The total yield was 24.6 tons. The yield per acre was therefore 20.1 tons.

1.04 acres were planted with large red mangel-wurzel. The total yield was 27 tons. The yield per acre was 26 tons.

From this statement it follows that the mangel-wurzel, which was planted at the same time and received the same cultivation and attention as the sugar beet, yielded six tons by weight more than the latter. Evidently, however, the comparative value of these two crops cannot be settled by weight alone. The true criterion is the relative amount of nutritive matter furnished in the given weights per acre of the two kinds of roots. This question could only be determined by a chemical examination. Accordingly, about a dozen specimens of each were selected for this purpose and subjected to an analysis.

The chemical composition of these two kinds of roots was found to be as follows, in 100 parts:

	Sugar beet.	Mangel-wurzel.
Water	86.94	89.84
Ash	0.76	0.82
Protein	2.01	1.54
Crude fiber	0.79	0.78
Nitrogen—free extract	9.28	6.82
Fat	0.22	0.20
Total	100.00	100.00
Dry organic matter	12.80	9.34

Multiplying the number of tons per acre by the per centage of dry organic matter respectively, we find that the 20.1 tons of sugar beets give us 2.47 tons of nutritive matter, and the 26 tons of mangel-wurzel give us 2.42 tons of nutritive matter. In other words, the 20 tons of beets are a little more than equivalent in nutritive value to the 26 tons of mangolds.

HAY.

The hay obtained from the lawn at first cutting was about 25 tons, and about 5 tons, chiefly clover hay, were obtained at the second cutting.

A field of 16 acres was in clover, from which there was obtained 35 tons of hay of excellent quality, with the exception of about 4 tons damaged by the rain. A timothy meadow of 8 acres yielded 23 tons of excellent hay, all of which was gotten into the barn in good condition.

DEPARTMENT OF HORTICULTURE.

Hon. I. B. Wing, Chairman Farm Committee:

Dear Sir: I have the honor to present the annual report of the out-door work of the department of botany and horticulture for the year 1885–6:

The report includes a statement of the facilities for teaching practical horticulture, the progress and results of the labors of the past season, together with the receipts and expenditures for the year.

OBJECT OF THE GARDENS.

The primary object of the gardens is to illustrate the value of different varieties of fruits and vegetables, to show the effects of different methods of culture, and to present, as far as possible, a good example of general management. Another object is by observation and experiment to reach results that are of equal interest and value to the general public.

PUBLIC APPLICATION.

It is but fair to say that the collections of vegetables and small fruits grown annually in the university offer unequaled facilities for comparison as to real merit.

That these opportunities are being appreciated is evidenced by the large and constantly growing correspondence and the increasing number of visitors.

A great degree of interest is manifested by fruit-growers and gardeners in various parts of the country in the work that is being done by the department. Plants and seeds are frequently sent for trial, and the reports of the various tests made are looked upon with favor. This is not wholly due to the magnitude and completeness of our operations, but rather on account of their impartial and disinterested character.

Among the visitors of the past year that were specially interested in the work of this department, may be mentioned, Prof. William Saunders, president of the Canadian horticultural society; Major H. E. Alvord, director of Houghton farm, and now professor in the Massachusetts agricultural college; Prof. M. A. Scovell, director of the Kentucky agricultural experiment station; Mr. H. Hale, the celebrated small fruit culturist of Connecticut; W. H. Maule, the well-known seedsman of Philadelphia; J. W. Jenks, professor of agriculture in Brown University, R. I.; Mathew Crawford, J. J. Harrison, N. Ohmer, B. F. Albaugh, F. R. Palmer, Leo Weltz, E. H. Cushman, S. R. Moore, and many other prominent horticulturists of the state.

The number of visitors during the year exceeded three hundred.

GENERAL STATEMENT.

The work in the department has been carried on during the year upon the same general plan as in former seasons, except that it has been somewhat more experimental in character.

Although the expense of this work has been defrayed by the experiment station, the total receipts of the department have been somewhat lessened. The decrease, however, has not been so great as might be expected. The area of crops grown for market purposes alone has, of course, decreased as the space devoted to purely experimental work has increased. While this has diminished the quantity of marketable produce it has also lessened the amount of labor required in the market garden. In other words, the amount of work carried on in the market garden proper has been less than in former years, because of the space devoted to experimental work. It is probable, however, that the balance is not very different from what it would have been had the amount of business transacted been two or three times as great, unless educational and experimental work were wholly set aside for mere money-making.

The areas devoted to most crops have been about the same as in former seasons, but in many cases a considerable percentage of the products has been unmarketable on account of inferior varieties that were planted for trial. Inasmuch as all of the products of the garden belong to the horticultural department, even though grown by the station, the planting of what prove to be worthless varieties, where valuable ones might be grown, would seem to cause considerable loss. This loss, however, is not a serious one to the department, for the reason that it is only the profit that might have been made in growing a better crop upon the same ground.

It is probable this loss is fully met in the products that the station turns over to the department, and upon which it sustains no expense, except that of marketing. Thus it will be seen that while the department is unable to carry on the same amount of business as might be done if none of its ground were given up to the station, its financial condition is not seriously affected by so doing.

The horticultural work is all carried on under the same management, thus making unity and harmony possible. It must be conceded, however, that the mere business details of looking after numerous small crops, and marketing driblets of produce, consume much of the superintendent's time that might otherwise be devoted to experimental work.

The amount of student labor used has been somewhat less than formerly, for the reason that it has been found more satisfactory to employ students upon experimental work, and regular employes upon garden work proper. This is advantageous to students, both as to the amount of work that can be given and the opportunities afforded for observation.

It may be safely asserted that the opportunities here afforded for the study of horticultural products and operations are rarely equaled. Nearly all the fruits and vegetables commonly grown may be found in their season. All of the new varieties and novelties are planted each season, together with those that are well-known, aggregating considerably more than one thousand.

Different methods of cultivation are practiced and the use of fertilizers illustrated by numerous series of plat experiments.

The educational value, as well as the condition of the work experimentally, can best be shown by a detailed statement of the crops grown.

In many cases it is impossible to give an estimate of the cost, for the reason that no satisfactory account has been, or could be kept of the purely experimental work. An account of the cost of such crops as were grown solely for profit, and upon a considerable scale, can alone be given.

THE FRUIT GARDEN.

Apple Orchard. Although many of the trees, as stated in a former report, have been injured by the severity of the frost two or three winters, a considerable number have made a thrifty growth and borne some fruit.

The location is not a desirable one for an orchard, and but little more can be realized from it than the purpose it may serve as a comparative test of varieties under unfavorable but equal conditions.

In consideration of the fact that orchards have been greatly injured of late by freezing, the question of hardiness of varieties is one of signal importance. By top-grafting it will be possible to test a large number of varieties, both new and old. In this way the apple orchard may be made to serve a very useful purpose.

Pear Orchard. Two years ago it was thought that the pear trees were making a too vigorous growth, and a portion of the orchard was seeded with clover. This, however, did not save the trees, so about one-fourth of the dwarfs perished during the winter. The remaining trees bore a fair crop, a large share of which was taken by trespassers. It will be necessary to adopt some method of protection if the crops are to be secured in the future. Several of the healthiest and hardiest of the standard trees have been top-grafted with new and valuable sorts. These grafts have grown finely, and will soon bear fruit. The whole list now includes fifty or more varieties. Like the apple orchard, the usefulness of the pear orchard will consist for the most part in its value for experimental purposes.

Quince Orchard. This continues to grow thriftily but bears no fruit. Since the severe injury of the plants by frost three years ago, they have been trained in the bush form. The location of the orchard is thought to be a suitable one for quinces, and it is probable that it will give more satisfactory results in the future.

Cherry Orchard. The trees of all varieties, except those of the early Richmond, have succumbed to the severity of the climate. Those remaining of this hardy and valuable sort gave a good crop of excellent fruit. An account of this crop the past season alone would show almost no expense aside from that of picking and marketing. The cultivation given to the currant and gooseberry bushes, growing between the trees, was the only labor expended upon them.

If the trees were charged with a proportionate share of the cultivation given since planting, together with a portion of the first cost, the showing for the year would be fairly represented as follows:

One-fifth original cost of trees	$3 00	
Cultivation	3 00	
Picking and marketing of crop	8 70	
	$14 70	
Fifteen bushels of fruit, at $2.00		$30 00
Net profit		$15 30

The above statement is based on the supposition that the trees will bear at least four more crops, each one of which shall be charged with a share of the first cost. The orchard consists of fifty trees of bearing age, occupying about one-third of an acre of ground. For several seasons the gooseberry and currant bushes growing between the trees have brought even better returns than the cherries.

This more than doubles the receipts and net profits from this plat of ground, making a good showing for these somewhat neglected fruits.

Currants. Although the currant worm has been successfully combated by means of white hellebore, the bushes have become somewhat debilitated through partial loss of leaves, old age, and on account of being too much shaded by the cherry trees. The yield for the past season was, therefore, light. It will be necessary to plant cuttings and start a new plantation. The white varieties are comparatively unprofitable, as the demand for them is quite limited.

Fay's Prolific, a new variety about which much has been said, seems likely to maintain its high reputation. Our experience shows that the currant, when properly treated is a very profitable fruit to raise. Its value is enhanced by the persistent ravages of the currant worm, which is kept in check by few, mainly those who make fruit growing a business.

Gooseberries. Although the gooseberry bushes are in a somewhat better condition than the currant bushes, what has been said of the latter applies to them also. The yield the past season was unusually light.

Raspberries. There were about two acres in bearing the past season. A portion of the plantation of red varieties was on low ground, and the canes winter-killed every season. This portion proving unprofitable the plants were dug up last spring and the ground devoted to strawberries.

A part of the black caps were also grubbed out. A new plantation consisting of varieties for trial has been started. The plants in both the old and new patches are in good condition, having made a fine growth.

The red varieties were pruned much closer than usual last year. This resulted in much better fruit, it being both larger and more solid.

The receipts were doubtless greater than they would have been if the old method had been practiced, although the yield in bulk was somewhat less.

This experiment which has been tried two seasons, demonstrates beyond a doubt that the quality of the fruit is greatly affected by the manner of pruning. In the case of certain varieties, especially the Turner, this improvement was marked. The receipts from raspberries marketed were less than usual, owing to the overstocked condition of the market. The average price was about $2.50 per bushel. A little more was obtained at the beginning of the season; also, for what was sold at retail.

The following account shows the cost of cultivation and returns from one acre of Turner raspberries:

The expense account shows what was actually paid for pruning, cultivating, picking and marketing. The receipts may have been a few dollars more or less, as some of the fruit was sold in connection with other fruit, and a seperate account was not kept. The average price, per bushel, that named.

	Dr.	Cr.
Pruning and cultivation	$12 00	
Picking and marketing	60 50	
	$72 50	
50 bushels of fruit, @ $2.50		$125 00
Net profit		$52 50

It would of course be proper to debit the crop with rent of land, and a share of the original cost of plants, etc.

The crop of black varieties was not equal to that of the red sorts, owing to the fact that some of the plants were not of bearing age. The cost of picking is less, however, and the demand for the fruit better. Thus the two classes are nearly equal in point of profit. Our list of varieties on trial is very complete, comprising nearly all of the new and many of the old.

Of the black varieties Gregg, Ohio, and Tyler have given the best satisfaction, while of the red, Turner, reliance and Marlboro are among the most desirable.

Strawberries. The yield was comparatively small, owing in part to the unusually short season, but still more to the ravages of insects. No accurate detailed accounts can be given of the cost of growing the crop, because much of the work thereon was purely experimental.

The experience of several seasons has shown that about one month of labor per season is required to properly cultivate and care for one acre of strawberries. To this must be added rent of land, cost of plants, fertilizers, picking and marketing. The aggregate of these items makes the cost about one dollar per bushel. In the case of some of the large-fruited but shy-bearing sorts, the cost is considerably more than this sum. The average price at retail, the past season, was $2.50 per bushel, or a little less than eight cents per quart.

The wholesale price was about $2.00 per bushel, or six and one-quarter cents per quart. Berries of inferior quality often sold as low as $1.50 per bushel.

The net profit on the crop was about $1 00 per bushel, which is considerably more than was realized by many private growers.

Our collection of varieties is very complete, embracing nearly all the desirable sorts, both new and old. We are also testing many promising varieties still unknown to the public.

The most desirable kinds are Crescent, Champion, Sharpless, Cumberland, Miner's prolific and Jewell.

The four last named are especially valuable where fine large fruit is desired.

Blackberries. Special efforts have been made to find hardy varieties that will withstand the severe cold and sudden changes of temperature of our winters.

Snyder and Stone's hardy are the only ones thus far tested that seem to answer the requirements of our climate. Unfortunately the fruit of these two varieties is so small that they do not prove profitable for market.

The Lucretia dewberry seems thus far to meet the requisite conditions, and will be planted more extensively. The plants are hardy, while the fruit is of large size and very early. From present indications this variety seems destined to occupy a very important place among our fruit plants.

Several species of huckleberries and blueberries are on trial, but success with them is by no means assured. The growth of the plants is feeble and sickly, showing that they are not adapted to the soil and climate.

THE VEGETABLE GARDEN.

The field lying north of the fruit garden has been used the past season for the cultivation of garden vegetables.

Nearly all the work in the vegetable garden was experimental, hence no itemized financial account of the different crops can be given. The net income received by the department, however, has been nearly or quite as great as though regular crops had been grown, since all of the experimental work is paid for by the station.

Celery. This crop was grown on a small scale mainly for market, water for irrigating being convenient, by means of which success was assured. The celery was planted as a second crop on ground which had been devoted to early cabbages. Irrigation was practiced at the time of setting the plants, and at other times whenever there was a lack of sufficient moisture. A liberal supply of well decomposed stable manure was placed in the bottom of the furrows before planting.

The value of the crop is estimated, since it has not all been sold. The area occupied was one-tenth of an acre.

	DR.	CR.
2,000 plants, @ $2.00 per hundred	$4 00	
Labor, planting and cultivating	12 00	
Cost of marketing	10 00	
	$26 00	
2,000 plants, @ $2.00 per hundred		$40 00
Profit		$14 00

This statement shows that although celery may be grown here with some profit the margin is small. The following method, which seems particularly well suited for the family garden, has been successfully practiced. It differs from the ordinary method, simply in the fact that the plants are set closely in beds, six inches by one foot apart, in order to facilitate irrigation. The beds should be about four feet in width, and highly fertilized. The plants may be banked in this position and left a great part of the winter, if covered with straw.

This plan has been found to be quite as suitable for a market garden as the old method, and much better where the celery is grown for private use.

Cabbage. This vegetable was grown for experiment only. Considerable space was devoted to trials of fertilizers, as the soil was poor, and thought to be well adapted to the purpose. The results were not very decisive, except in the case of complete fertilizers, such as stable or farm-yard manure, or compounds containing its equivalent.

The trial of varieties was conducted the same as last season. About 300 different samples were tested. The question of quality of seed is one of such importance that this work is regarded as of very great value by seedmen and growers generally. A detailed statement is necessary in order to show the results of these tests.

Preference is given to seed from Brill, Vick, Henderson, and Livingston, although nearly all seedmen have more or less good stock. The following varieties are recommended as being among the best: Early Wakefield, Early Summer, Fottler, Flat Dutch, Louisville Drumhead, and Surehead. Nearly all of the so-called "earliest" kinds, such as Early Etampes, Early Paris, and the various strains of each, sent out under new names, are worthless in this climate, and reflect little credit upon the seedmen who give them such unqualified praise.

Tomatoes. Ninety different samples were grown under sixty distinct names. The number of varieties was less than half of the latter number, showing that synonyms are numerous.

Several samples, that proved to be old varieties under new names, were obtained from Europe, proving that foreign seedsmen, as well as our own, make a practice of renaming recent importations. Comparatively few of the whole list are worthy of cultivation. The Acme, Favorite, Perfection and Beauty have given the best satisfaction. Numerous others, quite as good, under various names, are nothing but slightly modified forms of these well known sorts. The Mikado, sent out last season, proves to be no better than several other rough and ill-shaped sorts that have been discarded.

No tomatoes were planted for market, as those planted for trial yielded all the fruit that could be sold with profit.

Potatoes. Two acres were planted for market, but the soil was so infested with white grubs that the crop was nearly ruined. At least 80 per cent. of the potatoes were so badly eaten as to be unmarketable.

A careful test of fertilizers was carried out, but the results have not been tabulated. An increased yield was noticed where potash salts, superphosphate and manure were used, although the effects were not marked in any instance. The potato scab was much worse where manure was used than upon unfertilized plats. Potash salts seemed to check it to some extent. About 200 varieties were planted. It does not seem likely that any of the new and highly praised varieties will supersede those that are now regarded as standard sorts.

The usual attention was given to peas, radishes, squashes, carrots, onions, etc. None of these crops, except squashes, were grown for market. The price realized for these vegetables is usually so low, and the amount of labor required to fit them for market so great, that they cannot be grown at a profit.

Squashes here yielded very satisfactory returns, better perhaps than any other garden vegetable, but even here the demand is limited.

IMPROVEMENTS.

The new location of the vegetable garden is much superior to the old. The soil is better drained, and responds more readily and quickly to the application of manure. Sufficient stable manure could not be obtained to properly fertilize the whole garden, but where applied the effect was marked. On the whole, the crops were better than usual, and there is no reason why they should not continue to improve until maximum yields are obtained. The cost of working and trouble of superintending is greatly lessened by the removal. Roads have been laid out in continuation with those in the fruit garden, making every portion easily accessible, while the appearance is much improved. The old fence along the east side of both gardens has been removed, and in its place an evergreen hedge has been planted. This forms a neat boundary line between the campus and gardens.

Water-pipes for irrigation have been laid along the east side of the north garden, and connections made with the city water-works. This gives excellent facilities for growing certain crops that require an abundance of moisture. The open cess-pool, which received the sewerage from the university buildings, and occupied much valuable land, has been removed by extending the sewer to the west side of the garden. This pit is now so constructed that it does not overflow. This improvement, as well as the laying of the water-pipes, was paid for by the experiment station. On the whole, the department is in a much better condition to do efficient work than at any previous period of its existence.

AN URGENT NEED.

A propagating house is much needed to grow plants for early planting out of doors, and to force certain vegetables. Hot-beds are unsatisfactory and inconvenient for these purposes. They are being discarded by practical gardeners and cheap green houses used instead. A propagating house would serve as a valuable means of illustration, and is needed by every division of the department of botany and horticulture. It would afford employment for students at a season of the year when out-door work cannot be furnished. The construction of a suitable house for the objects named would cost about $500. This sum would build a house 20 x 50 feet, which would meet the present requirements.

FOREST TREE CULTURE.

The plantations of forest trees embrace the following:

Wild Black Cherry.
Yellow or Black Locust.
Catalpa (*speciosa*).
Black Walnut.
Green Ash.
White Ash.
Black Ash.
Sugar or Hard Maple.
Red or Scarlet Maple.
White Oak.
Red Oak.
Chestnut Oak.
Beech.
Cucumber.
Kentucky Coffee Tree.
Chestnut.

The seeds of the above-named species were sown or planted in the spring of 1882. With the exception of the chestnut, oaks and walnut, which were not transplanted, the different varieties were removed from the seed-bed when one year of age. The measurements are the average of ten trees of each variety so selected as to fairly represent the whole number. The trees were grown in rows three and one-half feet apart, and two feet apart in the row.

The following table shows the diameter at collar or base of the stem, at two feet, and four feet above the ground, together with the total height, and the growth of the present season. The measurements were taken during the second week of August, 1886:

TABLE SHOWING THE COMPARATIVE RATE OF GROWTH OF YOUNG TIMBER TREES.

Variety.	Diameter at base.	Diameter at 2 feet.	Diameter at 4 feet.	Total height.		Growth during 1886.	
	Inches.	*Inches.*	*Inches.*	*ft.*	*in.*	*ft.*	*in.*
Wild Black Cherry...	2 3/4	2 1/4	1 1/2	14	1	4	2 1/2
Bl'k or Yellow Locust	3 1/2	2 3/8	2 1/4	19	1/4	5	1/2
Catalpa	3 5/8	2 3/8	1 3/4	11	10 3/4	3	7 1/4
Black Walnut	2	1 3/8	15/16	9	6 3/8	3	7
Green Ash	2 1/2	1 3/4	1 1/4	13	1	4	3 3/4
White Ash................	2 1/4	1 3/8	1 1/4	10	10 1/8	3	11 1/4
Black Ash................	1 5/8	15/16	9/16	9	4 3/4	4	10 1/2
Sugar Maple	1 1/2	3/4	9/16	6	7 1/2	1	7 1/4
Red Maple	1 5/8	1 1/4	3/4	7	8 3/4	1	9 1/2
White Oak...	1 1/2	9/16	3/16	4	2 1/2		11 1/2
Red Oak	1 7/8	7/8	5/8	9	2 1/2	2	1/2
Chestnut Oak..........	1 7/8	1 1/4	1/2	8	6 3/4	2	8
Beech	3/4	1/4		3	4 1/2	1	2 1/2
Cucumber	1 5/8	1 3/8	1/2	6	3	2	6
Ky. Coffee Tree	1 1/4	3/4	5/8	5	5 1/4	3	3/4
Chestnut......	1 13/16	5/8	7/16	7	3 5/8	3	8 3/8

The following tables of comparative growth present some points of interest. The varieties mentioned in each table were grown side by side, but in independent plantations:

COMPARATIVE ANNUAL GROWTH OF CATALPA AND SUGAR MAPLE, THREE YEARS FROM SEED, TRANSPLANTED AT ONE YEAR.

	First year's growth in inches.	Second year's growth in inches.	Third year's growth in inches.
Sugar Maple	8	22	38
Catalpa	20	44	45

We see from the above table that the Catalpa grew two and one-half times the height of the Sugar Maple the first season, twice the height the second, with a comparatively slight difference the third year.

COMPARATIVE ANNUAL GROWTH OF GREEN ASH AND WHITE ASH, FOUR YEARS FROM SEED, TRANSPLANTED WHEN ONE YEAR OLD.

	First year's growth in inches.	2nd year's growth in inches.	Third year's growth in inches.	4th year Aug. 1, gr'th in inches.
Green Ash	14	25	35	38
White Ash	12	20	33	42

COMPARATIVE GROWTH OF YELLOW LOCUST AND CATALPA, EIGHT YEARS FROM SEED TRANSPLANTED WHEN TWO YEARS OLD.

Variety.	Total height.	Present year's growth.	Diam. at base.	Diam. at 4 ft.	Diam. at 8 ft.	Diam. at 12 ft.	Diam at 16 ft.	Diam. at 20 ft.	Diam. at 24 ft.	Diam. at 28 ft.
		ft. *in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*	*in.*
Yellow Locust..	34 3	5 7	5¼	4	3⅝	3⅜	3⅜	2 1/16	1¾	11/16
Catalpa	22 4	2 11	3⅝	2½	2	1⅝	13/16			

The trees referred to in the last table were planted by the agricultural department of the State University before the establishment of the experiment station.

BOTANIC GARDEN AND ARBORETUM.

I append to this report a copy of a paper read before the last meeting of the state horticultural society, on the "Need of a Botanic Garden and Arboretum." I trust the way will soon be open to meet this imperative need:

THE NEED OF A BOTANIC GARDEN AND ARBORETUM.

BY PROF. W. R. LAZENBY, OF COLUMBUS.

The impression is common that of the three great kingdoms of nature, the vegetable is really the least important. We know it through some of its more common representatives, but scarcely ever give it the rank that is accorded to either the animal or the mineral kingdom. The truth is, however, it is much more important than either of these, and may be regarded as a connecting link between them. Plant life is not possible without the mineral elements, and animal life is wholly impossible without plants Did you ever think of the fact that no animal can exist without the aid of some vegetable production? It is true that animals often live directly upon other animals, but these other animals are dependent for their existence upon plants.

The great office of plants is to change mineral matter, i. e., air, water, and earth, into organic or vegetable matter The vegetable kingdom, therefore, performs the following offices:

1. It furnishes all the food upon which animals live. All the food of all animals was made by plants.

2. It furnishes pure air for man and the lower forms of animal life.

3. It furnishes all the clothing of man.

4. It furnishes all the fuel and light material in the world (natural warmth of the body included).

5. It furnishes the greater part of our utensils, tools, and building material.

6. It furnishes the most valuable medicines for restoring health and warding off disease.

I might extend this list considerably farther, but enough has been said to show that the animal kingdom is not only wholly dependent upon the vegetable for its existence, but for almost every needed comfort and convenience.

So much for the importance of the vegetable kingdom. Let us now consider me special reasons why the science of botany, or the study of plants, is one worthy our attention. These considerations will also include some of the advantages fforded by such study:

1. Representatives of the vegetable kingdom for observation and study are abundant and readily accessible. Weeds, flowers, shrubs, trees, are everywhere about us.

2. The elementary facts regarding the external structure, growth, and classification of plants are so simple that their study can be commenced in early childhood, and be pursued by every one.

3. Botany stands without a rival as a means of developing the powers of observation, and in the scope it offers to the cultivation of the descriptive faculties.

4. The pursuit of botany enlarges our capacity for enjoyment. It opens up to us a world of grace, harmony and beauty.

5. Most important of all, is the fact that an intimate knowledge of plants has a practical value in various directions. It is indispensable to the intelligent pursuit of horticulture and agriculture, and when we consider that more people are occupied in these avocations than in all others, its value must be recognized. Medicine, both human and veterinary, is depending more and more upon a knowledge and use of plants and their various products. Industrial art and commerce are much more intimately related to the vegetable kingdom than to the animal or mineral.

These brief considerations show conclusively that botany, or a knowledge of the vegetable kingdom, is of great importance to the welfare and prosperity of the state. Let us forever rid our minds of that superficial prejudice against botany that ranks it as a fancy subject—a mere accomplishment, best suited to girls and invalids. Botany is a noble branch of knowledge, and its fundamental principles should be understood by all.

In view of the importance of the vegetable kingdom and the desirability of increased facilities for studying and observing the same, many have felt that Ohio should have a suitable garden where all plants that would grow in our climate could find a home, and their economic value be definitely determined. This sentiment found expression in the meeting of our state society last winter, and a resolution was unanimously adopted stating that—

"The establishment and maintenance, at the Ohio state university, of a well-equipped garden and arboretum, for the illustration of systematic and economic botany and forestry, would be of great benefit to the people of the state, especially to teachers of our public schools, to farmers, nurserymen, fruit-growers, florists, and to medical students. In such establishment the Ohio state horticultural society will take the deepest interest, and it desires, respectfully, but earnestly, to commend the subject to the trustees of the state university, and to the general assembly."

Upon the passage of the above resolution, a committee, consisting of Dr. N. S. Townshend, Gov. Hoadly and Prof. M. C. Read, was appointed to prepare a memorial, expressing the wishes of the state horticultural society, and to present the same to the general assembly of the state. This committee performed its duty in an acceptable manner, and an earnest effort was made to secure the desired end by appropriate legislation. No action was taken by the legislature, and the matter is just where it was before.

Let us consider the plan contemplated by the society. The resolution states that the establishment and maintenance of a well-equipped botanic garden and arboretum would be of great benefit to the people of the state. What is meant by the "establishment of a botanic garden and arboretum?" The general features of the plan are as follows: It is designed to use a certain tract of land belonging to the state university—say, ten acres, more or less—which is admirably situated for the purpose—for the growth of herbaceous plants, shrubs and trees, not only from parts of the United States, or of America, but from all other parts of the world, as well. All of the different species and varieties introduced will be grouped under two distinct systems of arrangement. One system will exhibit, in the best manner possible, the natural relationship that exists between the different plants—that is, all the representatives of each family will be grouped together, without reference to their economic properties, and the families, as far as possible, will be arranged according to their botanical sequence. Another system of grouping will place all plants of economic value in groups according to the nature of their products. For example all plants that produce fibres would constitute one group; all that had any value as medicines would form another, and so on, furnishing a means of popular instruction by object lessons that would be invaluable.

In this way, the climatic adaptations and economic values of plants of all kinds, grasses, grains, fruits, ornamental and forest trees from different parts of the world could be readily studied, and, as a result, reliable information regarding their merits could be given to the public. Such a garden and arboretum could subserve other ends of usefulness. One is the distribution of seeds and plants of new varieties, such distribution usually taking the form of exchange. When we consider that many of our finest ornamental plants come from abroad, that the same is true of vegetable and fruit plants, and remember that no special systematized effort to introduce these has been made until quite recently, this plan of exchange and distribution opens up a wide and promising field of usefulness.

BOTANIC GARDENS IN OTHER COUNTRIES.

Last year, we were favored with a very interesting description of the botanic gardens of Great Britain, by Dr. Townshend. There are twelve of these gardens in the British Empire, and some of them have a world-wide reputation. The garden of Kew, England, is probably the largest and most perfectly equipped of any in the world.

Let us see what other countries are doing in the same direction. Germany has 32 gardens; Italy, 24; France, 22; Austria and Russia, 12 each; Belgium, 6; Switzerland, 5. Our own country, the great United States, has but three; one at Washington, maintained by the general government; one at Cambridge, belonging to Harvard university, and one at St. Louis, established and supported by the private beneficence of Mr. Henry Shaw. Perhaps I should mention in addition a small but well-planted garden at the Michigan agricultural college at Lansing. The educational value of these gardens is manifest when we consider that a large proportion of them are connected with, or maintained by, educational institutions. Their importance as a means of popular instruction to a very large class of people who have no opportunity for special education is very great, and is recognized by other nations, if not by our own. The relationship that exists between institutions of this character and the culture and refinement of a people is close and intimate. The influence they exert is a powerful factor in the formation of individual character. The character of the individual gives national character, and those nations which possess the strongest character—which lead the world in thought and in all the higher elements of an advanced civilization, are those which have the largest number of these educating and refining institutions.

Our own state of Ohio is one of the largest and most populous in the Union. No other occupies so important a geographical position; no other has more varied or extensive resources; few, or none, possess greater agricultural or horticultural possibilities. In view of these facts, an accurate knowledge of plants, with special reference to their climate adaptations and economic value, is demanded. The great state of Ohio should, at least, be on a par with Denmark, Servia, Tasmania, New Zealand, and other countries, each of which has a well-established botanic garden and arboretum. Neither Egypt nor Japan can be classed among the most civilized or enlightened nations of the earth. In fact, they occupy a low plane of civilization, yet they have their botanic gardens. Certainly, Ohio, with her enterprise and wealth, should not consent to take a lower position than these countries.

The rapid removal of the timber which once covered our state, is giving rise to many questions and presenting problems that demand solution. The only way to grapple with these questions is to make a careful study of forest trees with reference to their influence upon climate, their adaptability to different soils, the best methods of culture, general management, etc. Here, as in other directions, the botanic garden and arboretum should unite the scientific with the practical.

QUESTION OF MAINTENANCE.

This is an all-important subject. It should have a sufficient guaranteed fund, supplying an ample revenue to keep it in good order and to pay for efficient services in the way of investigation and experimentation. Inasmuch as the institution is for the state, it should reasonably look to the state for its support. Another method is by private donation. I cannot but express the hope that the day is not far distant when some wealthy, public-spirited individual will seek to rear a worthy monument to himself, benefit the state, and bless the whole country, by establishing and permanently endowing a botanic garden. Surely, some successful business man must see that to thus give his name forever to a grand botanic garden and arboretum would be a most fitting and honorable crowning of a prosperous business career. The names of Arnold and Shaw, that are now given to such institutions, will be remembered long after the names of presidents and senators are forgotten. The state might begin the work by establishing a garden, and then await the coming of some noble, patriotic citizens who would add to the funds requisite to maintain it—an endowment for a director and trained observers, with all needed appliances for investigation, as well as for the publication of results.

LOCATION.

Certainly, no city in the great state of Ohio can claim so many important educational institutions—those representing so wide and varied a range of interests, as Columbus. As the great educational center of the state, the botanic garden and arboretum should be located here. More than this, Columbus is a natural center for testing plants for the whole state. Shrubs and trees grown here will also grow in the slightly colder climate of our northernmost countries. Any location farther south, on account of the warmer climatic conditions, would not be so well suited for the acclimatization of foreign plants. Plants that will stand the climate of Columbus could be safely distributed throughout the entire state.

In conclusion, it is my earnest hope that the general public will so far appreciate the need of a botanic garden and arboretum, that the effort now being made by our society will meet with substantial financial encouragement from state, city and private individuals.

ACKNOWLEDGMENTS.

I again extend my thanks to the friends of the university who have aided the department of horticulture by donations of seeds, plants, etc. Every gift of this character has increased the usefulness of our work. I desire to express my appreciation of the ability and industry of Mr. W. J. Green, superintendent of the gardens. The success of the department is largely due to his untiring efforts. Thanks are also due the students and others who have labored in the gardens With scarcely an exception all have proved faithful, showing a desire to do good, honest work.

FINANCIAL STATEMENT.

Statement of the aggregated receipts and expenditures of the fruit and vegetable gardens of the Ohio State University, for the year ending November 15, 1886:

Receipts from produce sold	$772 40
Balance on hand	22 52
Total	$794 92

EXPENDITURES.

Ordinary labor	$480 38	
Student "	67 51	
Superintendent	150 00	
Repairs	2 15	
Freight	1 95	
Seeds, plants, crates, manure	83 75	
Total	$785 74	
ance on hand		$9 18

Respectfully submitted.

WILLIAM R. LAZENBY.

TREASURER'S REPORT.

COLUMBUS, OHIO, *November* 15, 1886.

HON. SETH H. ELLIS, *President Board of Trustees of the O. S. University:*

DEAR SIR: Herewith I hand you my report for the fiscal year ending this 15th day of November, 1886. The report includes the following statements:

- I. Recapitulation.
- II. Statement of the endowment fund—held by the state and pledged to the support and maintenance of the university.
- III. Statement of Virginia military land sales.
- IV. Detailed statement of cash receipts during current fiscal year.
- V. Detailed statement of cash disbursements during current fiscal year.
- VI. Statement of appropriations made by the board of trustees, and a list of professors, officers and employes, with salaries of each.

Respectfully submitted.

F. W. PRENTISS, *Treasurer.*

STATEMENT I.

RECAPITULATION.

F. W. PRENTISS, *Treasurer, in account with Ohio State University:*

		Dr.
To cash balance as per my report of 1884-5		$ 1,417 52
Received from Ohio state treasury		37,269 98
Being on account of interest on endowment fund, maturing January 1, 1886	$10,000 00	
Being balance of same, maturing Jan. 1, 1886	6,134 74	
Being on account of same, maturing July 1, 1886	5,000 00	
Being on account of same, maturing July 1, 1886	5,000 00	
Being balance of same, maturing July 1, 1886	6,135 24	
Being on account of same, maturing Jan. 1, 1887	5,000 00	
Received from Ohio state treasury		572 07
Being on account of general assembly appropriation for trustees' expenses.		
Received from students		5,869 00
Being balance of fall term fees, 1884-85	$ 61 00	
Being winter term fees, 1885-86	1,889 00	
Being spring term fees, 1885-86	1,671 00	
Being fall term fees, 1885-86	2,248 00	
Received from rent O. S. U. residences		1,930 00
Being residence occupied by Pres. W. H. Scott	$385 00	
" " " Prof. A. H. Tuttle	545 00	
" " " Prof. B. F. Thomas	467 50	
" " " Prof. Geo. W. Knight	412 50	
" " " Prof. Sam'l C. Derby	120 00	

Received from agricultural experiment station		300 00
Being amount paid Prof. H. A. Weber for services as chemist.		
Received from proceeds of farm		1,500 00
Being amount paid by H. A. Weber, farm manager.		
Received from sales Virginia military lands		202 28
Being sundry notes, payments on notes and interest on same	$180 28	
Being cash payments on lots sold	22 00	
Received from miscellaneous sources		153 30
Being for postage stamps sold students by Pres. Scott	$ 9 42	
Being for apparatus and supplies sold students by Prof. Norton	137 88	
Being for old carpet sold by Bursar Cope	6 00	
		$49,214 15

F. W. Prentiss, *Treasurer, in account with Ohio State University:*

	Cr.
By cash paid faculty, teachers and officials	$31,916 63
" on account of expenses board of trustees	183 41
" " fuel and care of buildings	460 46
" " department supplies	742 14
" " attendance at farmers' institutes	107 00
" " general repairs	1,184 32
" " other current expenses	3,283 46
By balance, being cash in hands of treasurer	11,336 73
	$49,214 15

STATEMENT II.

Statement of the Endowment Fund in accordance with the provisions of an Act passed February 10, 1870, O. L., Vol. 67, page 15, Sections 8433 and 8446, R. S.

The principal of the endowment fund is	$537,841 46
The annual income from above source is interest computed at the rate of 6 per cent. per annum, and amounts to	32,270 48

STATEMENT III.

Virginia Military Land Sales.

Net cash receipts into treasury from sales to November 15, 1885, as my report 1884-85, page 71	$38,343 91
Cash receipts during year 1885-86	202 28
Net cash receipts to November 15, 1886	$38,546 19

Note.—$13,665.84 of these receipts have been paid into the Ohio state treasury to the credit of the endowment fund. The remainder having been added to the current funds and applied to the building of new residences for professors, and as otherwise directed by board of trustees.

STATEMENT IV.

Detailed Statement of Receipts, by F. W. Prentiss, Treasurer, during Fiscal Year ending 15th November, 1886.

Date.	From whom received.	On account of.	Amount.
1885.			
Nov. 16	Balance	As per my report of 1884–5	$1,417 52
	State Treasury	Being on account of interest on endowment fund, due 1st January, 1886	10,000 00
	Geo. W. Knight	2d installment rent	37 50
Dec. 15	Benj. F. Thomas	2d " "	42 50
	Jas. McGraw, assignee	Payment on notes of S. A. Bond	50 00
	Geo. W. Knight	3d installment rent	37 50
	Sam'l C. Derby	3d " "	20 00
	W. H. Scott	3d " "	38 50
	L. M. & V. Beavers	Payment note L. M. & V. Beaver $29 55	
	Same	Interest on above 1 95	
			31 50
	Jeremiah Ellis	Purchase money for lots 191, 192 and 193, Adams county, less expense of survey, etc., $26	22 00
	Benj. F. Thomas	3d installment rent	42 50
	Jas. McGraw, assignee	Bal. due on notes and interest of S. A. Bond	6 54
30	State Treasury	Being balance of interest on endowment fund to 1st January, 1886, less 50c. not drawn from State treasury, and thus added to endowment fund to correct error in last five semi annual paym'ts of interest, which have been drawn for 10 cts. too much, thereby reducing said fund 50 cts	6,184 74
	A. H. Tuttle	3d installment rent	47 50
	Geo. W. Knight	4th " "	37 50
	W. H. Scott	4th " "	38 50
	Sam'l C. Derby	4th " "	20 00
	Benj. F. Thomas	4th " "	42 50
	Alexis Cope, Bursar	Bal. fall term bills '85	61 00
1886.			
Feb. 25	State Treasury	Being on account of interest on endowment fund due 1st July, 1886	5,000 00
	Geo. W. Knight	5th installment rent	37 50
	Benj. F. Thomas	5th " "	42 50
	W. H. Scott	5th " "	38 50
March 25	Alexis Cope, Bursar	Winter term bills:	
	Same	Incidentals $1,370	
	Same	Chemical laboratory fees 210	
	Same	Agricultural " " 96	
	Same	Physiological " " 88	
	Same	Physical " " 84	
	Same	Mechanical " " 36	
	Same	Botanical " " 5	
			1,889 00
	Geo. W. Knight	6th installment rent	37 50
	W. H. Scott	6th " "	38 50
	Benj. F. Thomas	6th " "	42 50
	A. H. Tuttle	7th and 8th installment rent, 1884 and 1885	70 00

STATEMENT IV.—Continued.

Date.	From whom received.	On account of.	Amount.
1886.			
March 30	Vincent Beaver	Bal. Beaver 5-year note...... $2 92	
	Same	Int. " " " 08	
			$3 00
	Benj. F. Thomas	7th installment rent	42 50
	Geo. W. Knight	7th " "	37 50
April 24	State Treasury	Being on account of interest on endowment fund due 1st July, 1886	5,000 00
	W. H. Scott	7th installment rent	38 50
	Sam'l C. Derby	5th, 6th and 7th installment rent	60 00
May 4	J. R. English	Notes J. R. English, one and two years, $39 each.........$78 00	
	Same	Interest on above 11 24	
			89 24
	Benj. F. Thomas	8th installment rent	42 50
June 8	W. H. Scott	Stamps sold to students	9 42
	Same	8th installment rent	38 50
	Geo. W. Knight	8th " "	37 50
	Same	9th " "	37 50
	Benj. F. Thomas	9th " "	42 50
	W. H. Scott	9th " "	38 50
	Agricultural Experiment Station	Am't due Prof. Weber for chemical work	300 00
18	Alexis Cope, Bursar	Spring term bills:	
	Same	Incidental fees $1,198	
	Same	Chemical laboratory fees.... 176	
	Same	Agr'l chemical " " 96	
	Same	Physiological " " 72	
	Same	Physical " " 70	
	Same	Mechanical " " 45	
	Same	Stall rent 14	
			1,671 00
30	State Treasury	Being balance of interest on endowment fund to 1st July, 1886	6,185 24
	Benj. F. Thomas	10th installment rent	42 50
	Geo. W. Knight	10th " "	37 50
	Thos. J. Godfrey	Being trustees' expenses paid trustees from treasury of university during year 1885-6, and then drawn from State treasury in respective totals and paid into university treasury	
	Seth H. Ellis		121 95
	Lucius B. Wing		90 40
	Peter H. Clark		91 50
	Thos. A. Cowgill		84 06
	Same		94 15
Aug. 30	Sidney A. Norton	Apparatus and supplies sold students	137 88
	Jas. B. Jamison	Being trustees' expenses paid from treasury of university during year 1885-6, and then drawn from state treasury and paid into university treasury	90 01
	W. H. Scott	10th installment rent	38 50
	J. M. Stuart for S. C. Derby	th " "	20 00
Sept. 23	State Treasury	Being on account of interest on endowment fund due 1st January, 1887	5,000 00
Oct. 16	Benj. F. Thomas	1st installment rent, 1886-7	42 50
	Geo. W. Knight	1st " "	37 50
Nov. 3	H. A. Weber, farm man'r	Proceeds of farm	1,500 00
	W. H. Scott	1st and 2d installment rent, 1886-7	77 00

STATEMENT IV.—Continued.

Date.	From whom received.	On account of.	Amount.
1886.			
Nov. 3	Geo. W. Knight	2d installment rent, 1886–7	$37 50
	Benj. F. Thomas	2d " "	42 50
4	Alexis Cope, Bursar	Fall term bills:	
	Same	Incidentals $1,595	
	Same	Chemical laboratory fees 250	
	Same	Agr'l chemical " " 152	
	Same	Physical " " 91	
	Same	Mechanical " " 63	
	Same	Physiological " " 35	
	Same	Pharmacy " " 32	
	Same	Botanical " " 6	
	Same	Stall rent 24	
			2,248 00
	Same	Sale old carpet	6 00
12	A. H. Tuttle	4th, 5th, 6th, 7th, 8th, 9th and 10th installment rent 1885–6, and 1st and 2d installment rent 1886–7	427 50
			$49,214 15

STATEMENT V.

DETAILED STATEMENT OF DISBURSEMENTS, BY F. W. PRENTISS, TREASURER, DURING FISCAL YEAR ENDING NOVEMBER 15, 1886.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Nov. 16	A. P. Blocksom	Repairs of arms and equip'ts	1	$34 46
	Samuel Findlay	Adv'g in Educat'l Monthly	2	15 00
	The Druggists' Circular	" school of pharmacy	3	15 00
	Columbus Dispatch	" veterinary clinic	4	10 00
	The Columbus Record	" " "	5	7 00
	George H. Twiss	Stationery	6	8 10
	George M. Maris & Co	Locks, keys, etc	7	3 85
	same	Glass and putty	8	1 18
	City Boiler Works	Rep'g boiler, etc., horticultu'l building	9	343 13
	Blackwood, Green & Co	Repairing roof	10	26 03
	S. P. Watt	Rep'g Dr. Townshend's house	11	9 60
	Martin Bryant	1¾ days digging around pump pit and 3 days helper to mason, horticultural b'ldg.	12	7 12
	Col. Brass and S. P. Works	Fittings for general repairs	13	3 60
	R. O. Smith & Co	Lumber—dorm. coal houses	14	9 55
	N. C. Nichols	10 hrs. repg. dorm. bath-room	15	1 50
	Noble Patterson	Labor and material, horticultural building	16	11 90
	Emmit Mason	22 hrs. labor on st'm pipes, etc	17	5 50
	J. M. Harner	Term fees refunded on acct. of illness	18	8 00
20	Col. Water Works	Water rent from May 1 to Nov. 1, 1885	19	85 2
28	W. H. Scott	Salary Nov., '85, installment	20	300 0
	Edward Orton	" "	21	225 0

STATEMENT V.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Nov. 28	S. A. Norton	Salary Nov., '85, installment	22	$225 00
	N. S. Townshend	" "	23	225 00
	A. H. Tuttle	" "	24	225 00
	S. W. Robinson	" "	25	225 00
	N. W. Lord	" "	26	100 00
	Sam'l C. Derby	" "	27	225 00
	W. R. Lazenby	" "	28	225 00
	J. R. Smith	" "	29	225 00
	A. H. Weber	" "	30	200 00
	Benj. F. Thomas	" "	31	225 00
	George C. Comstock	" "	32	200 00
	George W. Knight	" "	33	200 00
	A. P. Blocksom	" "	34	50 00
	C. Newton Brown	" "	35	120 00
	Alice K. Williams	" "	36	100 00
	David O'Brine	" "	37	90 00
	George W. McCoard	" "	38	120 00
	J. E. Randall	" "	39	80 00
	Jos. E. Bradford	" "	40	100 00
	A. H. Welsh	" "	41	120 00
	H. P. Smith	" "	42	15 00
	Emma C. Lehner	" "	43	12 50
	Vernon J. Emery	" "	44	12 50
	Alexis Cope	Salary to Dec. 1, '85	45	100 00
	F. W. Prentiss	" " "	46	33 33
	H. J. Detmers	Salary Nov., '85, installment	47	100 00
Dec. 15	R. W. Baker	3½ days' as mason's helper at tank pit	48	5 25
9	H. W. Knight	Building sewers for new residences, to be paid out of Va. military land funds	49	339 30
	Jas. McDowell	Labor on tank	50	11 25
11	Noble Patterson	Labor on tank pit and helper	51	45 75
17	M. F. Capron	Rep'g dorm. and eng. house	52	4 92
21	W. H. Hannum	2 days' labor repairing boiler house and dormitory	53	2 70
	Adams Express Co	Freight on goods	54	6 70
	Col. Brass and S. P. Works	Pipes, etc., rep'rs st'm heat'g	55	54 84
	George M. Maris & Co	Supplies	56	7 04
	Braun & Bruck	Borax, oils, etc.	57	5 00
	Stitt, Price & Co	30 measures of lime	58	3 00
15	Columbus Transfer Co	Drayage and freight	59	4 44
	Blackwood, Green & Co	Supplies for University	60	11 25
	D. Y. Murdock	Adv'g in Ohio Con. Minutes	61	6 00
	Bowe & Beggs	Carpets, etc., sig. serv. obs'er	62	40 00
	W. U. Elliott	Repairing bulletin boards	63	90
	same	Bal. due on contract, repairing steam heating	64	79 45
23	W. H. Scott	Salary Dec., '85, installment	65	300 00
	Edward Orton	" "	66	225 00
	Sidney A. Norton	" "	67	225 00
	Norton S. Townshend	" "	68	225 00
	A. H. Tuttle	" "	69	225 00
	S. W. Robinson	" "	70	225 00
	N. W. Lord	" "	71	100 00
	Sam'l C. Derby	" "	72	225 00
	W. R. Lazenby	" "	73	225 00
	J. R. Smith	" "	74	225 00
	H. A. Weber	" "	75	200 00

STATEMENT V.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1885.				
Dec. 23	Benj. F. Thomas	Salary Dec., '85, installment	76	$225 00
	George C. Comstock	" "	77	200 00
	George W. Knight	" "	78	200 00
	A. P. Blocksom	" "	79	50 00
	H. J. Detmers	" "	80	100 00
	C. Newton Brown	" "	81	120 00
	Alice K. Williams	" "	82	100 00
	David O'Brine	" "	83	90 00
	George W. McCord	" "	84	120 00
	J. E. Randall	" "	85	80 00
	Jos. N. Bradford	" "	86	100 00
	A. H. Welsh	" "	87	120 00
	H. P. Smith	" "	88	15 00
	Emma C. Lehner	" "	89	12 50
	Vernon J. Emery	" "	90	12 50
	Alexis Cope	Salary to January 1,1 .	91	100 00
30	F. W. Prentiss	" " "	92	33 33
	S. A. Webb	General repairs, labor acct	93	9 33
	B. A. Eisenlohr	Repairing steam fittings	94	9 00
	R. O. Smith & Co	Lumber to cover tank pit	95	6 81
	Wm. Gardner & Son	2 gas retorts, $40; 10-laddle tile, $11	96	51 00
	Wassall Fire Clay Co	⅓ bbl. fire-clay	97	1 00
	Col. Brass and S. P. Works	Repairs, steam pipe & fittings	98	22 12
	Strobridge Lithogra'ing Co	3,000 let'r-h'ds & 3,500 env'ps	99	40 00
	Krauss & Dobbie	Curtains for recitation-room	100	5 52
1886.				
Jan. 14	Fred. Weigold	Resurfaceing blackboards	101	7 52
	Jas. B Jamison	Expense, trustees	102	17 81
	Seth H. Ellis	" "	103	15 60
26	Martin Bryant	¾ days' as mason helper	104	1 12
	City Boiler Works	Repairing boiler	105	58 54
	D. W. Groff	Freight on packages	106	1 75
	Jas. G. Pulling & Co	Repairs on steam pump	107	22 01
	C. U. Telephone Co	Rent of instruments to April 1, 1886	108	25 00
	R. C. Needles & Co	New pumps and plumbing dormitory	109	79 60
	E. B. Armstrong	Repairing roofs, Dr. Knight's and Prof. Tuttle's	110	22 73
	Ohio State Journal	Advertising university	111	15 00
	Col. Warm Air Co	Repairing flue, Prof. Tuttle	112	3 25
	H. A. Weber, farm man'gr	Haul'g brick and st'm pump	113	11 55
	J. H. Bennett & Co	Electric supplies, time circuit	114	33 40
	R. Jones & Son	Instruments for vete'ry dept.	115	37 25
	Braun & Bruck	Supplies, veterinary dept	116	46 03
	Holden Bros	Soap, lye and broom	117	18 50
	Noble Patterson	Setting gas retorts	118	20 00
	Col. Brass & St. Pipe W'ks	Pipe and fittings for repairs	119	28 55
	Frank A. Ray	½ day's labor, repairs	120	1 13
	S. P. Watt	Repair'g at Dr. Townshend's	121	8 50
	Columbus Transfer Co	Freight, etc., gas retorts	122	17 24
	West. Union Telegraph Co	Messages	123	25
	The Lantern Pub. Co	Advertising university	124	10 00
	Geo. M. Maris & Co	Glass and hardware, uni'vry	125	5 10
	Edward Orton	Expenses att'g farmers' inst	126	14 55
29	Seth H. Ellis	Expense trustees	127	9 35
	W. H. Scott	Salary Jan'y, '86, installment	128	300 00
	Edward Orton	" "	129	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Jan. 29	N. S. Townshend	Salary Jan'y, '86, installment	130	$225 00
	Sidney A. Norton	“ “	131	225 00
	A. H. Tuttle	“ “	132	225 00
	S. W. Robinson	“ “	133	225 00
	N. W. Lord	“ “	134	100 00
	Samuel C. Derby	“ “	135	225 00
	W. R. Lazenby	“ “	136	225 00
	Jos. R. Smith	“ “	137	225 00
	H. A. Weber	“ “	138	200 00
	Benj. F. Thomas	“ “	139	225 00
	Geo. C. Comstock	“ “	140	200 00
	Geo. W. Knight	“ “	141	200 00
	A. P. Blocksom	“ “	142	50 00
	H. J. Detmers	“ “	143	100 00
	C. Newton Brown	“ “	144	120 00
	Alice Williams	“ “	145	100 00
	David O'Brine	“ “	146	90 00
	Geo. W. McCoard	“ “	147	120 00
	J. E. Randall	“ “	148	80 00
	Joseph Bradford	“ “	149	100 00
	A. H. Welsh	“ “	150	120 00
	H. P. Smith	“ “	151	15 00
	Emma C. Lehner	“ “	152	12 50
	Alexis Cope	Salary to February 1, 1886	153	100 00
	Vernon J. Emery	“ Jan'y, '86, installment	154	12 50
	F. W. Prentiss	“ to Feb. 1, 1886	155	33 33
Feb. 3	H. T. Stephens	Care of arms and equipment fall and winter '85–6	156	10 00
	Wassall Fire-clay Co	1 barrel of fire-clay	157	1 50
	Geo. M. Maris & Co	Paints, oils, etc	158	1 55
	Col. Brass & St. Pipe W'ks	Repairing pipes, tongs, etc.	159	16 02
	Kelly & Co	Repairing force pump Dr. Knight's	160	3 00
	Blackwood, Green & Co	Rep. conductor at dormitory	161	1 25
	J. M. Stuart	Carriages for trustees	162	8 00
	Frank A. Ray	Repairing locks and bulletin boards	163	55
	N. S. Townshend	Expenses trip to Washington	164	33 75
	H. J. Detmers	“ attn'g farmers' inst	165	13 75
	Edward Orton	“ “	166	5 10
	W. R. Lazenby	“ “	167	18 35
	Krauss & Dobbie	5⅜ yards. oil-cloth, ladies' gymnasium	168	2 83
	Adam Schneider	Paving brick for sidewalk	169	105 58
10	Columbus post office	1,500 2c stamps and 500 postal cards	170	35 00
27	W. H. Scott	Salary Feb., '86, installment	171	300 00
	Edward Orton	“ “	172	225 00
	Sidney A. Norton	“ “	173	225 00
	N. S. Townshend	“ “	174	225 00
	A. H. Tuttle	“ “	175	225 00
	S. W. Robinson	“ “	176	225 00
	N. W. Lord	“ “	177	100 00
	Samuel C. Derby	“ “	178	225 00
	W. R. Lazenby	“ “	179	225 00
	J. R. Smith	“ “	180	225 00
	H. A. Weber	“ “	181	200 00
	Benjamin F. Thomas	“ “	182	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886. Feb. 27	George C. Comstock	Salary Feb., '86, installment	183	$200 00
	George W. Knight	" "	184	200 00
	A. P. Blocksom	" "	185	50 00
	C. Newton Brown	" "	186	120 00
	Alice K. Williams	" "	187	100 00
	David O'Brine	" "	188	90 00
	George W. McCoard	" "	189	120 00
	J. E. Randall	" "	190	80 00
	J. N. Bradford	" "	191	100 00
	A. H. Welsh	" "	192	120 00
	H. J. Detmers	" "	193	100 00
	Horace P. Smith	" "	194	15 00
	Emma C. Lehner	" "	195	12 50
	V. J. Emery	" "	196	12 50
	Alexis Cope	Salary to March, 1886	197	100 00
	F. W. Prentiss	" " 1886	118	33 33
Mar.	Col. Brass & St. Pipe W'ks	Fittings and repairing steam heating	199	19 81
	James Kelley	Salary to 1st March, 1886	200	70 00
	Wassall Fire-clay Co	500 bbls. fire-clay, $1.50; 400 fire-brick, $1.80	201	14 70
	William Taylor	1 barrel salt	202	1 25
	Borger Bros. & Co	Repairing boilers	203	84 78
	Jas. G. Pulling	Forging plugs and bolts for boilers	204	3 06
	A. H. Tuttle	Expenses attn'g farmers' inst	205	12 65
	Edward Orton	" "	206	6 00
	A. H Smythe	Stationery	207	12 15
	Aston & Huff	Rep. mantel President Scott's	208	2 90
	E. O. Randall	Papering Prof. Tuttle's	209	40 00
	Siebert & Lilley	Record of students & freight	210	20 34
	Central Union Tel. Co	Rent time signal line to 15th February, 1887	211	25 00
	Robinson & Burr	Supplies veterinary dep't	212	20 52
27	Noble Patterson	Repairs, etc	213	7 75
	W. H. Scott	Salary Mar., '86, installment	214	300 00
	Edward Orton	" "	215	225 00
	N. S. Townshend	" "	216	225 00
	S. A. Norton	" "	217	225 00
	Albert H. Tuttle	" "	218	225 00
	S. W. Robinson	" "	219	225 00
	N. W. Lord	" "	220	100 00
	Samuel C. Derby	" "	221	225 00
	W. R. Lazenby	" "	222	225 00
	J. R. Smith	" "	223	225 00
	H. A. Weber	" "	224	200 00
	Benjamin F. Thomas	" "	225	225 00
	Geo. C. Comstock	" "	226	200 00
	Geo. W. Knight	" "	227	200 00
	A. P. Blocksom	" "	228	50 00
	H. J. Detmers	" "	229	100 00
	C. Newton Brown	" "	230	120 00
	Alice K. Williams	" "	231	100 00
	David O'Brine	" "	232	90 00
	George W. McCoard	" "	233	120 00
	J. S. Bradford	" "	234	100 00
	A. H. Welsh	" "	235	120 00
	Horace P. Smith	" "	236	15 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	[illegible]
1886.				
Mar. 27	Vernon J. Emery	Salary, Mar., '86, installment	237	$12 50
	Emma C. Lehner	" " "	238	12 50
	Alexis Cope	" to 1st April, 1886	239	100 00
	F. W. Prentiss	" " "	240	33 33
	Columbus post-office	Postage stamps	241	62 00
April 7	Chas. N. Marple	Salary to 1st April, 1886	242	30 00
9	E. H. Mark	" " "	243	50 00
10	Col. Hock'g Coal & Iron Co	On account of coal delivered	244	200 21
	Kelley & Co	Repairs Prof. Knight's residence	245	4 25
	Col. Brass & St. Pipe W'ks	Repairs steam-heating	246	2 60
	Noble Patterson	Kalsomining Prof. Lord's room	247	2 00
	W. H. Scott	Express and postage on reports	248	8 93
	Same	Expenses att'g farmers' inst.	249	15 50
	Columbus Transfer Co	Freight and drayage	250	5 44
	Halm & Bellows Fur. Co.	Repairing chairs	251	10 00
	Vacuum Oil Co	10 gallons cylinder oil	252	8 50
	The Portland Cement Co.	4 sacks Portland cement	253	2 65
	John Allyn	5 charts	254	7 50
	D. W. Groff	Freight and drayage	255	4 60
	Central Paper Co	100sheets examination paper	256	35 00
	A. H. Smythe	Stationery	257	3 17
	Western Union Tel. Co	Messages	258	1 17
	Siebert & Lilley	1,500 envelopes for reports	259	21 00
	C. H. Hauiwalt	67 loads dirt for farm	260	10 55
	C. L. Herrick	Advertising university	261	2 00
	Hann & Adair	500 blank vouchers	262	2 65
	Central Union Tel. Co	Rent, 2 installments, to July 1st, '86, $25; also 2 messages 50c	263	25 50
	Stitt, Price & Co	20 bushels lime	264	3 20
	H. J. Detmers	Express charges paid	265	65
	Columbus post-office	Postage for Dr. Scott	266	60 00
16	Thomas J. Godfrey	Expense trustee	267	27 15
24	George W. Knight	Salary, April '86, installment	268	200 00
	W. H. Scott	" " "	269	300 00
	Sidney A. Norton	" " "	270	225 00
	N. S. Townshend	" " "	272	225 00
	Albert Tuttle	" " "	273	225 00
	S. W. Robinson	" " "	274	225 00
	N. W. Lord	" " "	275	100 00
	Samuel C. Derby	" " "	276	225 00
	W. R. Lazenby	" " "	277	225 00
	J. R. Smith	" " "	278	225 00
	H. A. Weber	" " "	279	200 00
	Benjamin F. Thomas	" " "	280	225 00
	George C. Comstock	" " "	281	200 00
	A. P. Blocksom	" " "	282	50 00
	H. J. Detmers	" " "	283	100 00
	C. Newton Brown	" " "	284	120 00
	Alice K. Williams	" " "	285	100 00
	David O'Brine	" " "	286	90 00
	George W. McCoard	" " "	287	120 00
	Jos. N. Bradford	" " "	288	100 00
	A. H. Welsh	" " "	289	120 00
	H. P. Smith	" " "	290	15 00
24	Alexis Cope	Salary to 1st May, 1886	291	100 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
April 24	F. W. Prentiss	Salary to 1st May, 1886	292	$33 33
	Emma C. Lehner	“ April, '86, installment	293	12 50
	V. J. Emery	“ “ “	294	12 50
	E. H. Mark	“ “ “	295	50 00
	C. A. Marple	“ “ “	296	30 00
	H. H. Parry	“ to 1st May, 1886	297	112 50
28	Peter H. Clark	Exp. att'g Apr. meet'g trust s	298	13 50
	Thomas J. Godfrey	“ “ “	299	16 00
	J. B. Jamison	“ “ “	300	17 00
	L. B. Wing	“ “ “	301	10 25
30	W. H. Scott	Postage, etc	302	4 71
	Holden Bros	22 gallons coal oil,@ 12½c	303	2 75
	Frank A. Ray	25 hours' work carpenter engineer department	304	5 68
	M. F. Capron	24 hrs. work engineer's dept	305	5 40
	U. S. Express Co	Freight pkg. physical dept	306	50
	Ward Bros	250 maps adv'g university	307	12 50
	The Lantern Pub. Co	Advertising university	308	22 25
	Col. Brass & St. Pipe W'ks	1 dozen gas burners	309	75
	W. H. Chever	½ dozen brushes and handles	310	6 00
	Columbus Transfer Co	Freight and drayage	311	3 60
	R. O. Smith & Co	Lumber for engineer's dept	312	10 66
	J. D. Riggs	Furnish'g forceps vet'y dept	313	1 25
	H. T. Stephens	Copying and mailing circulars school	314	6 60
	Col. Hock'g Coal & Iron Co	On account coal delivered	315	79 35
7	Columbus post-office	400 1c. and 300 2c. stamps	316	10 00
	Jno, Minton	1 load sand for gas retorts	317	1 65
	Wm. Halley	Plumbing at Dr. Knight's	318	6 65
	Columbus Transfer Co	Freight and drayage	319	2 94
	George M. Maris & Co	Hardware, etc	320	12 36
	Hann & Adair	50 note circulars	321	75
	N. S. Townshend	Expenses att'g farmers' inst	322	21 10
	R. O. Smith & Co	Lumber for casing pipes min. department	323	3 46
	Edward Orton	Expenses paid W. C. Jones for repairing	324	10 50
	W. C. Jones	Repairing model of state	325	20 00
	The Critic	Advertising university	326	8 00
	Col. Brass & St. Pipe W'ks	One self-closing cock	327	1 50
	American Express Co	Express charges on pkg. for university	328	6 15
	A. P. Blocksom	Supplies cartridges, arms and equipment	329	7 50
	Columbus Water-Works	Water rent, 6 months to 1st May, '86	330	114 14
	J. M. Stuart	Carriages	331	5 00
	W. H. Scott	Salary, June, '86, installment	332	300 00
June 30	Sidney A. Norton	“ “ “	233	225 00
	N. S. Townshend	“ “ “	334	225 00
	A. H. Tuttle	“ “ “	335	225 00
	N. W. Lord	“ “ “	336	100 00
	S. W. Robinson	“ “ “	337	225 00
	S. C. Derby	“ “ “	338	225 00
	W. R. Lazenby	“ “ “	339	225 00
	J. R. Smith	“ “ “	340	225 00
	H. A. Weber	“ “ “	341	200 00
	B. F. Thomas	“ “ “	342	225 00
	Geo. C. Comstock	“ “ “	343	200 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886. June 30	Geo. W. Knight	Salary, June, '86, installment	344	$200 00
	A. P. Blocksom	" " "	345	50 00
	H. J. Detmers	" " "	346	100 00
	C. Newton Brown	" " "	347	120 00
	Alice K. Williams	" " "	348	100 00
	David O'Brine	" " "	349	90 00
	Geo. W. McCoard	" " "	350	120 00
	E. H. Mark	" " "	351	50 00
	C. A. Marple	" " "	352	30 00
	Jas. N. Bradford	" " "	353	100 00
	A. H. Welsh	" " "	354	120 00
	H. P. Smith	" " "	355	15 00
	Emma C. Lehner	" " "	356	12 50
	V. J. Emory	" " "	357	12 50
	F. W. Prentiss	Salary to 1st of July, 1886	358	33 33
	Alexis Cope	" "	359	100 00
	M. F. Capron	Cleaning mach'y mech. lab.	360	6 20
	Williams & Co.	Two city directories (copies)	361	6 50
	Lantern Publishing Co.	Advertising university	362	10 00
	John D. Riggs	Putting spring in prest. chair	363	95
	Columbus Post-office	2 M 1-c. stamps for president.	364	20 00
	Columbus Transfer Co.	Freight and drayage	365	6 97
	Nitschke Bros	Printing blanks	369	28 40
	Kilbourne, Jones & Co.	Hardware	370	1 37
	B. E. Merry	Folding and directing circulars, 17 prs., @ 55c	366	2 55
	Nitschke Bros	1 M type-writting letters, and 1 M envelopes	367	9 15
	Makio	1 page advertising in Makio	368	15 00
	Geo. H. Twiss	1 index	371	1 00
	"	½ ream, 12 lbs. cap paper	372	1 20
	Strobridge Lithograph'g Co	20 diplomas on parchment	373	20 00
	Z. L. White & Co	Ribbons for diplomas	374	5 23
July 8	James W. Queen & Co	One Hoffman's nitrometer chem. lab.	375	3 00
	Gazette Printing Co.	50 sets examination questions chem. lab.	376	2 00
	Kauffman, Lattimer & Co	Supplies chem. lab	377	7 78
	Einor & Anend	" "	378	29 20
	Samuel C. Derby	150 p. c. circulars	379	2 35
	D. W. Groff	Freight and drayage	380	9 94
	Strobridge Lithograph'g Co	3 parchment diplomas	381	3 00
	Siebert & Lilley	2 warrant books	382	10 75
	Combination Gas Mach. Co	Hand-wheel for machine	383	2 35
	Columbus Barracks Band	Music during commencem'nt	384	25 00
	Aston & Huff	Repairing stoves	385	3 34
	Cen. Union Telephone Co	Rent 2 inst's for yr. ending 1st Oct., 1886, and 1 message	386	25 25
	Ohio State Journal Co.	Advertising June entrance examination	387	4 80
	Columbus Dispatch	Advertising June entrance examination	388	4 80
	Nitschke Bros	Stationery	389	17 00
	Braun & Bruck	Supplies vet'y dep't	390	2 40
	W. U. Telegraph Co	Message	391	39
	Noble Patterson	Mason work repairs	392	21 75
	J. M. Stuart	Carriages for trustees	393	16 00
	W. R. Lazenby	Repairs and care hort. build'g winter and spring term, '86	394	16 40

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
July 8	McCune, Lonnis & Griswold	Hardware and supplies	395	$78 39
	A. P. Blocksom	Supplies mil. dep't	396	3 13
	Sidney A. Norton	" chemical dep't	397	47 51
	Col. Brass & S. P. Works	General repairs	398	8 90
24	Halm & Bellows F[illegible]	43 doz. chairs during commencement	399	32 25
	W. H. Hannum	2 days cleaning well	400	4 00
	C. H. Aldrich	" "	401	4 00
	Columbus Post-office	4 M 2-c. stamps on summer announcement	402	80 00
Aug. 2	Alexis Cope	Salary to 1st August, 1886	403	100 00
	F. W. Prentiss	" " "	404	33 33
	Columbus Post-office	2 M 2-c. stamps on summer announcement	405	40 00
	Geo. M. Maris & Co	Supplies for ag. chem. dep't	406	50
10	R. O. Smith & Co	Lumber " "	407	10 30
	Wm. Gardner & Son	2 gas retorts and tile	408	52 50
	Columbus Dispatch	Adver. for proposals for coal	409	5 25
	Ohio State Journal Co	" "	410	6 00
	Columbus Transfer Co	Freight and drayage	411	12 85
	Nitschke Bros	Print'g summer announcem't	412	378 84
	Columbus Cabinet Co	1 case for geological museum	413	45 00
	W. U. Telegraph Co	Messages for Dr. Scott	414	75
	Siebert & Lilley	Inventory books	415	41 00
	A. N. Graham	Labor and material on plas. cast of Ohio	416	10 65
	Geo. M. Maris	Supplies chemical dep't	417	4 40
	Door, Sash & Lumber Co	" "	418	3 06
28	Frank A. Ray	1½ days' work on case for chemical dep't	419	3 38
	M. F. Capron	56 hours' work on case for chemical dep't	420	12 60
	W. B. Veits	1 day's lab. on ag'l chem. dep.	421	2 00
	Daily and Weekly Times	Advertising entr. ex., $4.80; coal contract, $5.40	422	10 20
30	Alexis Cope	Salary to 1st Sept., 1886	423	100 00
	F. W. Prentiss	" "	424	33 33
Sept. 6	Nat. Stockman & Farmer	Advertising university	425	9 79
	Columbus Record	" "	426	4 00
	Cranston & Stowe	" "	427	6 30
	Munns Co	" "	428	28 00
Oct. 14	J. D. Riggs	Visitors' attendant during state fair, 44 hours, @ 15c	429	3 53
	C. W. Misloh	Visitors' attendant during state fair, 44 hours, @ 15c	430	6 64
	W. B. Veits	Visitors' attendant during state fair, 4 days, @ $1.50	431	6 00
	L. Westfall	Visitors' attendant during state fair, 39 hours, @ 15c	432	5 85
	C. E. S. Kinnor	Visitors' attendant during state fair, 18 hours, @ 15c	433	2 70
	Siebert & Lilley	1 Matriculation record and letter file	434	28 00
	U. S. Express Co	Freight on package	435	5 67
	Adams Express Co	" "	436	4 95
	W. U. Telegraph Co	Messages	437	62
	Bausch & Lomb Optical Co	Supplies physiological dep't	438	92 34
	R. Smith & Co	" " "	439	25 57
	Bausch & Lomb Optical Co	" " "	440	6 89

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Oct. 14	Bachrach & Bro	4 packages celloidine	441	$4 00
	R. Jones & Son	Supplies physiological dep't	442	86 79
	Kilbourne, Jones & Co	“ “ “	443	2 40
	Columbus Rubber Co	“ “ “	444	6 66
	Wells & Tracey	2 doz. brooms, @ $2 85	445	5 70
	A. H. Smythe	60 spiritual songs, @ 50c	446	30 00
	Krauss & Dobbie	New carpet for chapel	447	88 14
	Stitt, Price & Co	2 M lime	448	2 00
	Kilbourne, Jones & Co	1 Yale lock and bolt for Dr. Detmers	449	2 15
	Geo. M. Maris & Co	Hardware, etc	450	19 18
	Chas. Wheeler	New pump, etc., for Derby residence	451	22 00
	Engineering News Pub. Co	Advertising university	452	5 00
	Cornly & Co	“ “	453	4 50
	Mast, Crowell & Co	“ “	454	41 00
	Heintzelman & Taylor	“ “ in ba.	455	6 00
	The Druggist Circular	“ “	456	5 00
	Columbus Dispatch	Adver. for rent for university	457	2 00
	Ohio State Journal Co	Printing class cards, etc	458	22 50
	Hershiser & Snyder	Lumber for mech'l dep't	459	9 45
	Willard Gleason	Setting glass Prof. Thomas' res., painting, etc., eng. dep't	460	4 05
	Clara Fisher	Salary Sept., 1886, installment	461	15 00
29	W. H. Scott	“ Oct., 1886, “	462	300 00
	S. W. Robinson	“ “ “	463	225 00
	Sam'l C. Derby	“ “ “	464	225 00
	H. W. Lord	Salary Oct., '86, installment	465	100 00
	W. R. Lazenby	“ “	466	225 00
	J. R. Smith	“ “	467	225 00
	H. A. Weber	“ “	468	225 00
	Benjamin F. Thomas	“ “	469	225 00
	Geo. C. Comstock	“ “	470	225 00
	Geo. W. Knight	“ “	471	225 00
	H. J. Detmers	“ “	472	120 00
	A. P. Blocksom	“ Sept. & Oct ,'86, “	473	100 00
	Ernst A. Eggers	“ Oct., '86, “	474	120 00
	Geo. B. Kauffman	“ Sept. & Oct.,'86, “	475	80 00
	David O'Brine	“ Oct., '86, “	476	100 00
	George W. McCoard	“ “ “	477	120 00
	Jas. N. Bradford	“ “	478	100 00
	A. H. Welsh	“ “	479	120 00
	Vernon J. Emery	“ “	480	12 50
	Clara Fisher	“ “	481	15 00
	F. W. Prentiss	“ to 1st Nov., 1886	482	33 33
	Alexis Cope	“ “ “	483	100 00
	L. E. Matthews	Slating 1,585 sq. yds. blackboard, @ 15c	484	79 00
	Jno. D. Riggs	Cleaning gas engine and rep governor, physical dep't	485	7 14
30	H. A. Weber, farm mana'r	Hauling and labor, men and teams, on grounds	486	43 46
Nov. 1	Washington Townsend	15½ days cleaning buildings. @ $1.50	487	23 25
2	Gazette Printing Co	500 postal cards and printing same	488	6
	P. Hayden & Sons	1 ton Bloss. coal, mech. dep'	489	4 00
	King, Gilbert & Warner	1 ton Glasgow iron, “	490	20 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Nov. 2	Central Union Tel. Co......	Rent instr. qr. ending Jan. 1, '86, @ $25, and message to Newark, O., 25c..............	491	$25 25
	Holden Bros.....................	Sapiolo, brushes and oil.....	492	7 67
	David O'Brine..................	Supplies, chemical dep't......	493	25 37
	W. J. Flynn	Testing scales......................	494	2 50
	R. O. Smith & Co.............	Lumber for cases, chem. dep.	495	18 71
	D. W. Groff	Freight on packages	496	9 11
	Adams Ex. Co..................	" "	497	15 25
	Theodore Flood..............	Adv'g in Chatauqua Daily Herald	498	9 31
	M. J. Lawrence................	Adv'g in Ohio Farmer	499	11 94
	Chas. F. Scott	Clerical services adv. university	500	40 00
	Geo. M. Maris & Co	3¾ doz. blank keys, etc	501	7 28
	Jas. W. Tuller & Co	Supplies physiological dep't	502	8 50
	J. W. Meek & Co............	4 doz. glass globes, etc.........	503	20 00
	Columbus Water-works ...	Water rent ending Nov. 1,'86 6 mos............................	804	114 13
3	W. Townsend	18½ days cleaning buildings, @ $1.50.........	505	27 75
	W. Halley........................	Plumbing, etc., Dr. Scott's and Dr. Knight's.............	506	20 05
	H. A. Weber, farm mana'r	Hauling dirt, trash, etc........	507	21 60
	Geo. M. Maris & Co.........	Supplies chemical dep't......	508	1 00
	Fred. J. Sager	Two band chains, eng'g dep.	509	17 55
	W. & L. E. Gurley	Repairing, en'g dep't..	510	41 10
	A. Black	4 doz. excavating st'm pipes	511	6 00
	F. Weigold	Resurfacing black-boards.....	512	15 69
	Fairbanks, Morse & Co.....	1 6-ton wagon scales	513	110 00
	W. U. Tel. Co....	Messages	514	50
12	Col. Brass and S. P. W'ks..	Pipes and fittings, st'm heat'g	515	59 32
	Geo. H. Twiss ....:	Class registers and stationery	516	16 74
	Col. Brass and S. P. W'ks..	Empire packing	517	3 56
	Geo. M. Maris & Co.........	132 lbs. iron, mech. dep't.....	518	3 30
	Col. Cabinet Co...............	Furniture, McCoard's recit'n room	519	15 00
	Siebert & Lilley...............	Mounting map, chem. dep't..	520	3 50
	Braun & Bruck	Sapolio, brushes, oils, etc.....	521	16 69
	R. O. Smith & Co............	Lumber for case, chem. dep't	522	1 60
	H. L. Newton.................	3 days' labor, chem. dep't ...	523	4 50
	Total disbursement ...	....	....	$37,877 42
	Balance, being cash in	my hands this day	.. ..	11,336 73
				$49,214 15

REPORT OF THE FINANCE COMMITTEE.

COLUMBUS, OHIO, *November* 23, 1886.

To the Board of Trustees of the Ohio State University:

The undersigned, committee on finance, having examined the accounts and vouchers of the treasurer, and compared them with the records and vouchers in possession of the secretary, we hereby certify that the report of the treasurer is correct.

T. J. GODFREY,
PETER H. CLARK.

LIST OF EMPLOYES AND COMPENSATION.

In compliance with section 7 of the organic act, passed by the Legislature of Ohio, May 1, 1878, which requires a list of "the number of Professors, officers, teachers and other employes, and the position and compensation of each, to be reported annually," I submit the following list:

William H. Scott,	President	$3,000 00
Edward Orton,	Professor	2,250 00
Sidney A. Norton,	Professor	2,250 00
Norton S. Townshend,	Professor	2,250 00
Albert H. Tuttle,	"	2,250 00
Stillman W. Robinson,	"	2,250 00
Nathaniel W. Lord,	"	1,000 00
Samuel C. Derby,	"	2,250 00
William R. Lazenby,	"	2,250 00
Josiah R Smith,	"	2,250 00
Henry A. Weber,	"	2,250 00
Benjamin F. Thomas,	"	2,250 00
George C. Comstock,	"	2,250 00
George W. Knight,	"	2,250 00
Augustus P. Blocksom,	"	500 00
H. J. Detmers,	"	1,200 00
C. Newton Brown,	Assistant Professor	1,400 00
Alice K. Williams,	Instructor	1,000 00
Ernst A. Eggers,	Instructor	1,200 00
George B. Kauffman,	Lecturer	400 00
David O'Brine,	Assistant	1,000 00
Geo. W. McCoard,	Assistant	1,200 00
Benj. W. Snow,	"	800 00
Joseph N. Bradford,	"	1,000 00
Albert H. Welsh,	"	1,200 00
Horace P. Smith,	"	150 00
Alexis Cope,	Secretary	1,200 00
Frederick W. Prentice,	Treasurer	400 00
Clara Fisher,	Assistant Librarian	150 00
Vernon J. Emery,	Clerk to President	125 00
Chas. A. Roth,	Florist	600 00
David Evans,	Engineer	800 00
Edda C. Grove,	Fireman	400 00

COLUMBUS, OHIO, *November* 15, 1886.

F. W. Prentiss, Treasurer Ohio State University:

DEAR SIR: The following appropriations and authorized expenditures of the funds of the university have been made by the trustees for the fiscal year 1886. The income of the endowment fund (so called) for the support and maintenance of the university:

Jan. 12, 1886.	For care of arms and equipments	$15 00
April 28, 1886.	Chemical department, foreign supplies	300 00
" "	Framing drawings Mining department	50 00
June 22, 1886.	Department of Geology	100 00
" "	" Chemistry	400 00
" "	" Physiology	300 00
" "	" Physics	1,000 00
" "	" Mechanical laboratory—supplies	150 00
	Student help	100 00
June 22, 1886.	Department of Drawing	10 00
" "	" Civil Engineering	150 00
" "	" Pharmacy	200 00
July 6, 1886.	Veterinary Surgery	100 00
" "	Physiology—student help	100 00

Respectfully,

ALEXIS COPE,
Secretary.

CATALOGUE

OF THE

OHIO STATE UNIVERSITY,

FOR THE YEAR 1886.

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1886.

	SUNDAY.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
JULY.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
AUG.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...
SEPT.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	...	...
OCT.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
NOV.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	...	...	...	...
DEC.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...
	...	...	...	...	...	...	...

1887.

	SUNDAY.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
JAN.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...
FEB.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	...	...	...	...	...
MARCH.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...
APRIL.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
MAY.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...
JUNE.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	...	...
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1887.

	SUNDAY.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
JULY.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
AUG.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	...	...	...
SEPT.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	...
OCT.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...
NOV.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	...	...	...
DEC.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
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UNIVERSITY CALENDAR.

1886.		
November 25 and 26,	Thursday and Friday,	Thanksgiving Recess.
December 16,	Thursday,	Term Examinations begin.
December 22,	Wednesday,	Fall Term ends.
1887.		
January 5,	Wednesday,	Winter Term begins.
February 22,	Tuesday,	Regular exercises omitted.
March 24,	Thursday,	Term Examinations begin.
March 30,	Wednesday,	Winter Term ends.
April 6,	Wednesday,	Spring Term begins.
May 21,	Saturday,	Senior Examinations end.
May 30,	Monday,	Regular exercises omitted.
June 15,	Wednesday,	Term Examinations begin.
June 19,	Sunday,	Baccalaureate.
June 20 and 21,	Monday and Tuesday,	Entrance Examinations. Commencement of Literary Societies.
June 21,	Tuesday,	Class-Day Exercises.
June 22,	Wednesday,	Commencement.
September 12 and 13,	Monday and Tuesday,	Entrance Examinations.
September 14,	Wednesday,	Registration Day.

BOARD OF TRUSTEES.

SETH H. ELLIS	Springboro.
LUCIUS B. WING	Newark.
THOMAS J. GODFREY	Celina.
THOMAS A. COWGILL	Kennard.
PETER H. CLARK	Cincinnati.
HENRY J. BOOTH	Columbus.
HENRY B. PERKINS	Warren.

OFFICERS OF THE BOARD:

LUCIUS B. WING	*President.*
HENRY J. BOOTH	*Vice-President.*
ALEXIS COPE	*Secretary.*
FRED. W. PRENTISS	*Treasurer.*

EXECUTIVE COMMITTEE:

H. J. BOOTH, P. H. CLARK, T. A. COWGILL.

FARM COMMITTEE:

L. B. WING, S. H. ELLIS, H. B. PERKINS.

FINANCE COMMITTEE:

P. H. CLARK, T. J. GODFREY, H. B. PERKINS.

FACULTY AND INSTRUCTORS.

WILLIAM H. SCOTT, LL. D., University Grounds.
President, and Professor of Philosophy.

EDWARD ORTON, Ph. D, LL. D., 104 Twentieth Street.
Professor of Geology.

SIDNEY A. NORTON, Ph. D., LL. D., 299 East Town Street.
Professor of General and Applied Chemistry.

NORTON S. TOWNSHEND, M. D., University Grounds.
Professor of Agriculture.

ALBERT H. TUTTLE, M. Sc., University Grounds.
Professor of Zoology and Comparative Anatomy.

STILLMAN W. ROBINSON, C. E., 1205 North High Street.
Professor of Mechanical Engineering.

NATHANIEL W. LORD, E. M., Room 16, Hayden Block, E. Broad Street.
Professor of Mining and Metallurgy.

SAMUEL C. DERBY, M. A., Indianola Place.
Professor of the Latin Language.

WILLIAM R. LAZENBY, B. Ag., University Grounds.
Professor of Horticulture and Botany.

JOSIAH R. SMITH, M. A., Indianola Place.
Professor of the Greek Language.

HENRY A. WEBER, Ph. D., University Grounds.
Professor of Agricultural Chemistry.

BENJAMIN F. THOMAS, Ph. D., University Grounds.
Professor of Physics.

GEORGE C. COMSTOCK, Ph. B., LL. B., 1174 North High Street.
Professor of Mathematics and Astronomy.

GEORGE W. KNIGHT, PH. D., University Grounds.
Professor of History and English Language and Literature.

H. J. DETMERS, M. V. D., East Woodruff Avenue.
Professor of Veterinary Surgery.

AUGUSTUS P. BLOCKSOM, First Lieut. 6th Cavalry, U. S. A., Park Hotel.
Professor of Military Science and Tactics, and Assistant Professor of Mathematics.

C. NEWTON BROWN, Indianola Place.
Assistant Professor of Civil Engineering.

ALICE K. WILLIAMS, 1174 North High Street.
Instructor in the French Language.

ERNEST A. EGGERS, Indianola Place.
Instructor in the German Language.

MRS. KATHERINE WESTENDORF, Cincinnati.
Instructor in Elocution.

GEORGE B. KAUFFMAN, B. S., 60 Garfield Avenue.
Lecturer on Pharmacy.

DAVID O'BRINE, E. M., M. Sc., M. D., University Grounds.
Assistant in Chemistry.

GEORGE W. McCOARD, M. A., King Avenue.
Instructor in Mathematics and Latin.

JOSEPH N. BRADFORD, M. E., 21 South Garfield Avenue.
Assistant in Drawing and Mechanical Engineering.

ALFRED H. WELSH, M. A, Cor. High Street and Third Avenue.
Assistant in History and English.

BENJAMIN W. SNOW, B. S., 1174 North High Street.
Assistant in Physics.

OTHER OFFICERS.

WILLIAM S. DEVOL,
Superintendent of Farm.

WILLIAM R. LAZENBY,
Superintendent of Grounds.

Assistant Librarian.

VERNON J. EMERY,
President's Clerk.

WILLIAM McCRACKEN,
Engineer.

OHIO GEOLOGICAL SURVEY.

OFFICERS AT THE UNIVERSITY.

EDWARD ORTON,
State Geologist.

NATHANIEL W. LORD,
Chemist.

OHIO AGRICULTURAL EXPERIMENT STATION.

OFFICERS AT THE UNIVERSITY.

NORTON S. TOWNSHEND,
Director.

WILLIAM R. LAZENBY,
Vice-Director.

HENRY A. WEBER,
Chemist.

HENRY J. DETMERS,
Veterinarian.

WILLIAM S. DEVOL,
Superintendent of Field Experiments.

WILLIAM J. GREEN,
Superintendent of Horticultural Experiments.

OHIO METEOROLOGICAL BUREAU.

OFFICERS AT THE UNIVERSITY.

BENJAMIN F. THOMAS,
Director.

EDGAR H. MARK,
Secretary.

WILLIAM B. ALWOOD,
Observer.

UNITED STATES SIGNAL SERVICE.

AUSTIN L. McRAE,
Observer of Atmospheric Electricity.

STANDING COMMITTEES OF THE FACULTY.

The university has been divided, for convenience, into five schools, and the affairs of each school have been assigned to a standing committee of the faculty. The president of the university is *ex-officio* chairman of each committee.

I. THE SCHOOL OF ARTS AND PHILOSOPHY.

Professor Derby, *Secretary.*

Professors Orton, Norton, Smith, Knight, Williams.

II. THE SCHOOL OF SCIENCE.

Professor Tuttle, *Secretary.*

Professors Thomas, Comstock, Orton, Eggers.

III. THE SCHOOL OF ENGINEERING.

Professor Comstock, *Secretary.*

Professors Lord, Robinson, Thomas, Brown.

IV. THE SCHOOL OF AGRICULTURE AND VETERINARY SCIENCE.

Professor Lazenby, *Secretary.*

Professors Townshend, Robinson, Lord, Tuttle, Weber, Detmers.

V. THE SCHOOL OF PHARMACY.

Professor Norton, *Secretary.*

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DEGREES CONFERRED JUNE, 1886.

Connell, William Adams	Portsmouth, Scioto	county	E. M.
Converse, Edward Jasper	Columbus, Franklin	"	B. A.
Cunningham, George Strode	Lancaster, Fairfield	"	B. Ph.
Devol, William Stow	Marietta, Washington	"	B. Ag.
Erskine, James H	Lowellsville, Mahoning	"	E. M.
Fisher, Clara	Columbus, Franklin	"	B. A.
Hill, Frank Edwin	Neville, Clermont	"	B. Sc.
Jones, Alfred Andrew	Columbus, Franklin	"	C. E.
Keifer, William White	Springfield, Clarke	"	B. A.
Masters, George Albert	Toledo, Lucas	"	C. E.
Milligan, James Porter	Rushville, Fairfield	"	B. A.
Sabine, Wallace Clement	Columbus, Franklin	"	B. A.
Schroll, Otto	" "	"	C. E.
Scott, Anna Neill	" "	"	B. A.
Smith, Horace Porter	Adams Mills, Muskingum	"	B. Sc.
Vandervoort, William P.	Morrow, Warren	"	E. M.
Viets, Willis Burton	Amboy, Ashtabula	"	E. M.
Watt, Sern Perley	Jamestown, Nebraska		M. E.

CATALOGUE OF STUDENTS.

This catalogue contains only the names of those students who have been in attendance during the first term of the current college year, together with the small number who entered during the second and third terms of the last year but have not returned. Besides these, there have been in attendance within the year 144 students whose names appeared in the last catalogue, but as they are not now in the university their names are not republished. The entire number of different students in attendance within the year was 674.

RESIDENT GRADUATES.

Converse, Edward Jasper	B. A	Columbus, Franklin county.
Fisher, Clara	B. A	" "
Jones, Alfred Andrew	C. E	" "
Schroll, Otto	C. E	" "
Scott, Anna Neill	B. A	" "

SENIOR CLASS.

Charters, William F	B. Ph	New Lisbon, Columbiana	county.
Converse. Howard, P	B. Sc	Columbus, Franklin	"
Corns, Harry	B. A	London, Madison	"
Emery, Vernon J	B. A	Napoleon, Henry	"
Hannum, William H	B. A	Lancaster, Fairfield	"
Hine, Lucius A	E. M	Milan, Erie	"
Hyde, Wilby G	B. A	New Holland, Pickaway	"
Hazlett, Robert, Jr	C. E	Wheeling, W. Va.	
Hunt, William F	M. E	Miamsburg, Montgomery	"
McPherson, William	B. Sc	Xenia, Greene	"
Mullay, Annie	B. Ph	Columbus, Franklin	"
Myers, Joseph S	B. A	" "	"
Myers, Uriah H	E. M	" "	"
Payne, Halbert E	M. E	Fostoria, Seneca	"
Ray, Frank A	E M	Jefferson, Ashtabula	"
Reeves, Archibald C	C. E	Dayton, Montgomery	"
Scott, Daisy M	B. A	Columbus, Franklin	"
Scott, May M	B. A	" "	"
Taylor, Joseph R	B. A	Marietta, Washington	"
Woodworth, Henry J	B. Sc	Jefferson, Ashtabula	"
Zaumsiel, Oscar C	C. E	Ripley, Brown	"

JUNIOR CLASS.

Aldrich, Chester H	B. A	Pierpont, Ashtabula county.	
Atkins, Gains G	B. A	Columbus, Franklin	“
Baker, Gano R., B. A Antioch College.	C. E	Yellow Springs, Greene county.	
Ball, Fred S	B. Ph	Portsmouth, Scioto	“
Brundage, Lawrence H	B. Sc	Xenia, Greene	“
Cellarius, Frederick J	C. E	Dayton, Montgomery	“
Crawford, William S	B. Ph	Cuyahoga Falls, Summit	“
Detmers, Fredericka	B. Sc	Columbus, Franklin	“
Fitzpatrick, John J	E. M	Columbiana, Columbiana	“
Fravel, George B	M. E	Columbus, Franklin	“
Garrett, Howard T	M. E	“ “	“
Gates, Harry M	C. E	“ “	“
Hartwell, Arthur	M. E	Xenia, Greene	“
Hayes, Seth	B. Sc	Columbus, Franklin	“
Hedges, Henry	B. A	Urbana, Champaign	“
Lehman, Richard A	B. A	Columbus, Franklin	“
Lord, Henry C	B. Sc	Cincinnati, Hamilton	“
Miller, Ira H	B. A	Columbus, Franklin	“
Mix, Edgar W	B Sc	“ “	“
Oster, Albert C	C. E	Mansfield, Richland	“
Scott, Emma	B. Sc	Columbus, Franklin	“
Stephens, Herbert T	B. A	Adrian, Michigan.	
Wadsworth, F. L. Olcott	M. E	Wellington, Lorain	“
Webb, Scott A	B. Ph	Jefferson, Ashtabula	“
Wilgus, James A	B. Ph	Conover, Miami	“

SOPHOMORE CLASS.

Bloom, George	C. E	Xenia, Greene county.	
Bownocker, John A	B. Sc	Amanda, Fairfield county.	
Boyd, Emma	B. Ph	Plain City, Madison county.	
Brown, Frederick W	E. M	Zanesfield, Logan	“
Carle, Roscoe L	B. Sc	Tiffin, Seneca	“
Capron, Marshall F	M. E	Conneaut, Ashtabula	“
Caylor, Chauncey L	B. Sc	Columbus, Franklin	“
Eckhardt, Robert	B. Ph	“ “	“
Fawcett, William C	C. E	Kilgore, Carroll	“
Floto, Julius	C. E	Cincinnati, Hamilton	“
Gaines, Charles E	B. Ph	Columbus, Franklin	“
Garber, Alberta D	B. Ph	“	“
Gregg, Frank B	B. Ph	Springboro, Warren	“
Hagler, Howard	B. Sc	Washington C. H., Fayette county.	
Hall, Harrison R	E. M	Kent, Portage	“
Hawley, Charles A	B. Ph	Milan, Erie	“
Heller, Albert H	C. E	Wapakoneta, Auglaize	“
Horton, Henry P	B. Ph	Pomeroy, Meigs	“
Jones, Jesse L	B. A	Martin's Ferry, Belmont	“
Kemmler, Edward A	C. E	Columbus, Franklin	“
Kiehl, Harry A	M. E	Dayton, Montgomery	“
Kirker, Harry L	B. Sc	Ironton, Lawrence	“
Lincoln, John C	M. E	Columbus, Franklin	“
Meek, William W	B. Ph	“ “	“
Mesloh, Charles W	B. A	New Bremen, Auglaize	“
Miller, Harry F	M. E	Columbus, Franklin	“
Morrey, William T	B. A	Chester Hill, Morgan	“
Neil, Hannah	B. Ph	Columbus, Franklin	“
Newton, Henry S	B. Sc	Newark, Licking	“
Oppenheimer, Samuel	C. E	Marion, Marion	“
Raymund, Frank M	B. A	Akron, Summit	“
Rickey, Alla B	B. Ph	Columbus, Franklin	“
Scheibell, William O	E. M	Mont Clair, N. J.	
Sharp, Charles C	C. E	Sugar Grove, Fairfield	“
Sigerfoos, Charles P	B. Sc	Arcanum, Darke	“
NThompson, Howard	B. Ph	Columbus, Franklin	“

FRESHMAN CLASS.

Albright, Edward R	C. E	Massillon, Stark county.
Arnold, Charles N	B. Ph	Milan, Erie “
Atkins, Charles G	M. E	Tiffin, Seneca “
Bancroft, Fanny E	B. A	Columbus, Franklin “
Basterdes, Ada M	B. Ph	“ “
Bauer, Charles L	M. E	Springfield, Clarke “
Bishop, Hudson D	B. Sc	Medina, Medina “
Braun, Walter	C. E	Columbus, Franklin “
Bricker, Lorin H	B. Sc	Rich Hill, Knox “
Brown, Alice L	B. A	Columbus, Franklin “
Brown, George W	M. E	Cincinnati, Hamilton county.
Callinan, William H	C. E	Columbus, Franklin “
Cathcart, Josephine M	B. Sc	“ “
Chamberlain, Herbert W	B. Sc	“ “
Clark, Emily L	B. A	“ “
Cole, George N	M. E	“ “
Craig, Moses	B. Sc	Rochester, N. Y. “
Cross, Edwin L	C. E	Racine, Meigs “
Doty, Harriet M	B. Ph	Columbus, Franklin “
Drennan, Jefferson N	C. E	Loydsville, Belmont “
Ewing, Charles E	B. A	W. Baltimore, Montgomery “
Feicht, Russell S	M. E	Dayton, Montgomery “
Fisher, Julius H. R. P	B. Ag	Loveland, Clermont “
Fox, Gertrude	B. Sc	Columbus, Franklin “
Gray, Charles S	C. E	Ironton, Lawrence “
Grimsley, Perry	B. A	Columbus, Franklin “
Johnson, Willis G	B. Sc	New Albany, Franklin “
Lamb, Louis A	E. M	Akron, Summit “
Laughlin, Hugh C	B. A	Belle Center, Logan “
McGaw, Laura S	B. Ph	Columbus, Franklin “
Mershon, Ralph D	M. E	Zanesville, Muskingum “
Mitchell, Henry S	B. Sc	London, Madison “
Moodie, Alice H	B. A	Columbus, Franklin “
Needels, Blanche R	B. Ph	Groveport, Franklin “
Needels, Mana R	B. Ph	“ “
Nye, George B	C. E	Pomeroy, Meigs “
Oviatt, Charles C	B. Ph	Richfield, Summit “
Oviatt, Emma J	B. Ph	“ “
Pocock, Carrie A	B. A	Columbus, Franklin “
Rannells, David A	B. Sc	McArthur, Vinton “
Richardson, James P	M. E	Clarksville, Clinton “
Ritchey, Joseph C	C. E	Lafferty, Belmont “
Scott, Bertha	B. Ph	Columbus, Franklin “
Scott, Harry P	B. Ph	Newark, Licking “
Skinner, Charles E	M. E	Redfield, Perry “
Spence, George L	B. Ph	Martin's Ferry, Belmont “
Smith, Carl C	B. Ph	Chester Hill, Morgan “
Smith, Charles G	C. E	Columbus, Franklin “
Talbot, Nellie	B. A	“ “
Thompson, James E	B. Ag	New Carlisle, Clarke “
Weaver, Mary L	B. Ph	Columbus, Franklin “
Welch, Clark J	C. E	Sandy Creek, N. Y. “
Westfall, Lafayette	B. Ph	Covington, Miami “
Wikoff, Charles A	B. Sc	Columbus, Franklin “
Williams, John H	B. Ph	Granville, Licking “
Winter, Charles A	B. Sc	Portsmouth, Scioto “
Yeazell, Harry A	B. A	Springfield, Clarke “
Youmans, Jessie B	B. Ph	Columbus, Franklin “
Youmans, Thomas G	B. Sc	“ “
Young, Richard B	B. A	“ “

SPECIAL STUDENTS.

Addison, Lewis G	Zanesville,	Muskingum	county.
Campbell, Marius R	Cleveland,	Cuyahoga	"
Fergus, John F	West Charleston,	Miami	"
Fowler, Charles E	Chillicothe,	Ross	"
Maxfield, Harvey E	Mansfield,	Richland	"
Patchell, Owen W	Stone Lick,	Clermont	"

SECOND PREPARATORY CLASS.

Angier, Edward H	Columbus,	Franklin	county.
Archer, Charles K	"	"	"
Baker, Cornelius B	Brookville,	Montgomery	"
Bargar, Gilbert M	Columbus,	Franklin	"
Baumgartner, Clark	Grove City,	"	"
Beach, Robert K	Kelloggsville,	Ashtabula	"
Beck, Herman G	Columbus,	Franklin	"
Blunt, Horace H	Xenia,	Greene	"
Bownocker, Louis	Amanda,	Fairfield	"
Boyd, James G	Plain City,	Madison	"
Boyd, Robert C	"	"	"
Brashears, Carrie P	Columbus,	Franklin	"
Bryant, Harry C	Dresden,	Muskingum	"
Cockins, Maude M	Columbus,	Franklin	"
Cope, Frank A	"	"	"
Doney, Carl G	"	"	"
Dudley, Stowell B	Henrietta,	Lorain	"
Egbert, Knott C	Tiffin,	Seneca	"
Evans, Jennie A	Columbus,	Franklin	"
Farmer, Maude G	"	"	"
Gale, Frank H	"	"	"
Gleason, Willard	Van Wert,	Van Wert	"
Goddard, Loring H	Dunham,	Washington	"
Gray, John W	Ironton,	Lawrence	"
Griswold, Mary C	Worthington,	Franklin	"
Haines, William H	Cambridge,	Guernsey	"
Haner, Jacob L	Plain City,	Madison	"
Hubbard, Ralph N	Columbus,	Franklin	"
John, George W	Dayton,	Montgomery	"
Jones, Aaron W	Columbus,	Franklin	"
Kershaw, Francis S	"	"	"
Kiesewetter, Louis F	"	"	"
Kocher,* Elmer E	Lockbourne,	"	"
Mellott, James F	Bellaire,	Belmont	"
Merritt, Charles J	Selma,	Clarke	"
Mock, George H	Columbus,	Franklin	"
Morrey, Charles B	Chester Hill,	Morgan	"
Mounts, James L	Morrow,	Warren	"
Mulligan, Anna B	Columbus,	Franklin	"
Norris, Jewett L	"	"	"
Norris, Walter B	"	"	"
Pocock, Madeline W	"	"	"
Pomerine, Frank E	Coshocton,	Coshocton	"
Potter, Joseph D	Columbus,	Franklin	"
Rees, William D	"	"	"
Sigerfoos, Edward	Arcanum,	Darke	"
Smith, Myron A	Bartlett,	Washington	"
Smith, Roscoe B	"	"	"
Turner, William S	Columbus,	Franklin	"
Ward, Hubert H	Zanesville,	Muskingum	"
Whitacre, Horace	Morrow,	Warren	"
Whitacre, Walter L	"	"	"
Wood, Francis C	Columbus,	Franklin	"

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* Deceased.

FIRST PREPARATORY CLASS.

Abbott, Harry I	Columbus, Franklin	county.
Brossman, William G	Lithopolis, Fairfield	"
Buss, Albert C	New Bremen, Auglaize	"
Case, William E	Elmwood, Franklin	"
Clark, Alexander E	Columbus, "	"
Cook, John S	" "	"
Cole, Claude B	Holgate, Henry	"
Davis, Jessie	Columbus, Franklin	"
Doak, Ella C	Bloomfield, Coshocton	"
Doney, DeWitt C	Columbus, Franklin	"
Doney, Emma C	" "	"
Drake, Gussie B	" "	"
Evans, Ernest	Friendship, Scioto	"
Evans, William L	Columbus, Franklin	"
Ewry, William	Cedarville, Greene	"
Fairbanks, Edward T	Plain City, Madison	"
Fairbanks, Harry S	Columbus, Franklin	"
Ferguson, Harry	West Lafayette, Coshocton	"
Fischer, William	Columbus, Franklin	"
German, William F	" "	"
Glidden, William E	Cambridge, Guernsey	"
Goodell, Ralph S	Columbus, Franklin	"
Gregg, Thomas C	West Jefferson, Madison	"
Grether, John D	Columbus, Franklin	"
Gruen, Frederick G	" "	"
House, Nellie B	" "	"
Hower, Phil G	Sandusky, Erie	"
Hutchinson, Eberly	Columbus, Franklin	"
Hynes, Mark V	Overpeck, Butler	"
Innis, Harry	Columbus, Franklin	"
Jones, Raymond V	" "	"
Kershaw, Samuel C	" "	"
Kilbourne, Russell	" "	"
Knopf, Herbert K	" "	"
Lewis, John T	Ashtabula, Ashtabula	"
McCarter, Edward B	Columbus, Franklin	"
McGurer, Flavia A	" "	"
Marsh, Harry H	" "	"
Martin, Percy	" "	"
Miller, Clara J	" "	"
Miller, Mary G	" "	"
Miller, Theron B	" "	"
Moses, John	" "	"
Mullay, William H	" "	"
Nesbitt, John E	Arcanum, Darke	"
Newton, Chauncey G	Columbus, Franklin	"
Patton, Allan V. R	" "	"
Peasley, Frank H	Flint, Delaware	"
Perkins, Nellie	Plain City, Madison	"
Peters, Earl C	Columbus, Franklin	"
Phillips, Edward E	" "	"
Pritchard, William H	New Lisbon, Columbiana	"
Ray, William M	N. Philadelphia, Tuscarawas	"
Robinson, Charles C	Alton, Franklin	"
Robinson, Charles W	Columbus, Franklin	"
Robinson, Ekka M	" "	"
Roy, David T	Glen Roy, Jackson	"
Schueller, Erwin W	Columbus, Franklin	"
Shaul, John M	Cable, Champaign	"
Slyh, Almeda F	Columbus, Franklin	"
Smith, Henry E	Loveland, Warren	"
Steckel, Arichibald	Tiffin, Seneca	"
Stewart, Frank T	Columbus, Franklin	"
Stinebaugh, Isaac L	Rockaway, Seneca	"

Stover, Norman W	Orangeville,	Trumbull	county.
Tomlinson, Samuel	Cedarville,	Greene	"
Wendt, William C	Columbus,	Franklin	"
Williamson, Glenn S	"	"	"
Wood, Willard	"	"	"
Young, Ralph A	Erie,	Pennsylvania.	

IRREGULAR PREPARATORY STUDENTS.

Allen, Virgil D	Columbus,	Franklin	county.
Alwood, William B	"	"	"
Buck, Thaddeus E	Cardington,	Morrow	"
Carr, Frederick J	Hamilton,	Butler	"
Gould, Joseph E	St. Simons Mills,	Ga.	
Griffin, Theodore L	Columbus,	Franklin	"
High, Frank C	Bucyrus,	Crawford	"
Hopkins, Edmund L	Amesville,	Athens	"
Kellogg, William V	Columbus,	Franklin	"
Lively, Louis P	Abner,	Texas.	
McColloch, George E	Bellefontaine,	Logan	"
Pedlow, Edward B	Ravenna,	Portage	"
Rees, Blanche	Columbus,	Franklin	"
Riggs, John D	Lawrence,	Kansas.	
Shannon, Walter G	Columbus,	Franklin	"
Swigart, Charles H	McClure,	Henry	"
Walker, Lou C	New Madison,	Darke	"
Wilcox, Cora	Galena,	Delaware	"

STUDENTS IN PHARMACY.

Earhart, Charles F	First	year	Columbus,	Franklin	county.
Hartinger, Arthur W	First	"	Middleport,	Meigs	"
Heath, Arthur T	Second	"	Cuyahoga Falls,	Summit	"
Jackson, James A	First	"	Mt. Gilead,	Morrow	"
Knopp, Harry E	First	"	Millersburg,	Holmes	"
Krieger, Charles H	Second	"	Columbus,	Franklin	"
Mason, George F	First	"	Groveport,	"	"
Oldham, John L	First	"	Reynoldsburg,	"	"
Osborne, Joel E	First	"	Prospect,	Marion	"
Peck, Frank H	First	"	Columbus,	Franklin	"
Weidner, George F	Second	"	Cuyahoga Falls,	Summit	"
Wolgamot, Samuel H	First	"	Millersburg,	Holmes	"

STUDENTS IN VETERINARY SCIENCE.

Daugherty, William A	Second	year	Avondale,	Coshocton	county.
Ellis, Charles	First	"	Springboro,	Warren	"
Francis, Mark	Fourth	"	Paddy's Run,	Butler	"
Innis, Lew W	Second	"	Columbus,	Franklin	"

SHORT AGRICULTURAL COURSE.

Burnham, Simeon F	First	year	Milford Center,	Union	county.
Burnham, Louis C	First	"	Irwin,	"	"
Brashear, Otto F	First	"	Milnersville,	Guernsey	"
Davis, Gager C	Second	"	Cortland,	Trumbull	"
Davis, Shelley	First	"	Dublin,	Franklin	"
Fox, Charles P	Second	"	Springboro,	Warren	"
Hathaway, Edgar R	First	"	Milford Center,	Union	"
Heston, Albert	First	"	Springboro,	Warren	"
Howard, Cone	First	"	Milford Center,	Union	"
Howard, Otto N	First	"	"	"	"
Howard, William, Jr	First	"	Irwin Station,	Union	"
Humphrey, Shepard S	First	"	Coolville,	Athens	"
Lavery, William F	First	"	South Salem,	Ross	"

McCoy, Charles C.	First year	Washington C. H., Fayette year.
McMullan, James H.	First “	Woodstock, Champaign “
Markey, Amos	First “	West Alexander, Preble “
Markey, Orange	First “	“ “ “
Peterson, Russell	Second “	Austin, Ross “
Stillings, Charles L.	First “	Milford Center, Union “
Stillson, Dwight M.	First “	Piketon, Pike “
Temple, George C.	Second “	Kent, Portage “
Thompson, Ansley N.	First “	Milnersville, Guernsey “
White, David S.	First “	Dunham P. O., Washington “
Wilkins, Howard L.	First “	Washington, D. C.
Wood, Alfred J.	First “	Mt. Gilead, Morrow “

SUMMARY.

Post Graduates		1
Under Graduates—		
Seniors	21	
Juniors	25	
Sophomores	35	
Freshmen	61	
Special	6	
		148
In Pharmacy	12	
In Veterinary	4	
In Short Agricultural Course	25	
		41
Preparatory—		
Second year	52	
First year	71	
Irregular	18	
		141
Total		331

COURSES OF STUDY.

There are nine courses leading to degrees. Of these three are general and six are technical. The degrees for which they are prescribed are respectively Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, Bachelor of Agriculture, Civil Engineer, Mechanical Engineer, Mining Engineer, Veterinary Surgeon, and Graduate in Pharmacy. Besides these courses there are the preparatory course and the short agricultural course, each two years in length.

The preparatory course is provided for those students who enter the university directly from the common or district schools. This course includes the ordinary studies of the better grade of high schools of the state. It is expected that the graduates of these schools can enter directly upon proper college work.

ELECTIVE COURSES.

The general courses have recently been rearranged so as to introduce a much wider range of elections. Students may now extend their courses by including studies which have hitherto been confined to other courses, or they may specialize their work by electing the same study for successive years.

PREPARATORY COURSE.

FIRST YEAR.

First Term—Algebra; English; Latin (Cæsar; Virgil begun) or German.
Second Term—Algebra; United States History; Latin (Virgil) or German.
Third Term—Botany; General History; Latin (Virgil) or German.

SECOND YEAR.

First Term—Geometry; Physical Geography; Latin (Cicero) or German.
Second Term—Geometry; Physics; Latin (Cicero) or German.
Third Term—Plane Trigonometry; Physics; Latin (Cicero) or German.

Either Latin or German, as named above, is to be chosen for a two years' course. Students looking forward to the degree of Bachelor of Arts, or to the degree of Bachelor of Philosophy, will take Latin; and candidates for other degrees will take German.

GENERAL COURSES.

FOR THE DEGREE OF BACHELOR OF ARTS.

FRESHMAN YEAR.

First Term—
Required—Latin, 5*; Greek, 5; English (*a*), Rhetoric, 2; Chemistry, 4.
Second Term—
Required—Latin, 5; Greek, 5; English (*a*), Rhetoric, 2; Chemistry, 2.
Elective, 3—Mathematics, 3; Mineralogy, 3.
Third Term—
Required—Latin, 5; Greek, 5; English (*a*), Rhetoric, 2.
Elective, 3 or 4—Mathematics, 3; Chemistry, 4.

SOPHOMORE YEAR.

First Term—
Required—Latin, 3; Greek, 3; English Literature (*b*), 2.
Elective, 8—Chemical Laboratory, 5; Physics, 3; Botany, 2; Physiology, 2; Practical Anatomy, 1; Freehand Drawing, 1.
Second Term—
The same as the first term.
Third Term—
The same as the first term.
Rhetoricals through the year.

After the year 1886-87 Physics must be preceded by the Mathematics of the freshman year.

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* The figures denote the number of hours a week.

JUNIOR YEAR.

FIRST TERM—
Required—Latin, 2; Greek, 3; Psychology, 3; Constitution of the United States, 2.
Elective, 5—German, 5; French, 5; English Literature (*c*), 2; History (*a*), 3; Historical Seminary (*c*), 2; Botany, 2; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term, except that Metaphysics is substituted for Psychology.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—
Required—Ethics, 3; Political Economy, 2; Greek, 3.
Elective, 7—Greek, 2; German, 3; English (*c*), 2; History (*a*) or (*b*), 3; Historical Seminary (*c*), 2; Recent Philosophy, 2; Geology, 5; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

SECOND TERM—
Required—Logic, 3; Political Economy, 2; Greek, 3.
Elective, 7—The same as in the first term.

THIRD TERM—
Required—History of Philosophy, 3; Political Economy, 2; Greek, 3.
Elective, 7—The same as in the first term, except that Astronomy is substituted for Geology.

Historical Seminary must be preceded or accompanied by the course in Constitution of the United States.

All elections must be continuous through the year. No instructor is required to form a class in an elective course for fewer than four students.

FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

FRESHMAN YEAR.

FIRST TERM—
Required—Latin, 5; French, 5; English (*a*), Rhetoric, 2; Chemistry, 4.

SECOND TERM—
Required—Latin, 5; French, 5; English (*a*), Rhetoric, 2; Chemistry, 2.
Elective, 3—Mathematics, 3; Mineralogy, 3.

THIRD TERM—
Required—Latin, 5; French, 5; English (*a*), Rhetoric, 2.
Elective, 3 or 4—Mathematics, 3; Chemistry, 4.

SOPHOMORE YEAR.

FIRST TERM—
Required—Latin, 3; French, 3; English Literature (*b*), 2.
Elective, 8—Chemical Laboratory, 5; Physics, 3; Botany, 2; Physiology, 2; Practical Anatomy, 1; Freehand Drawing, 1.

Second Term—
The same as the first term.

Third Term—
The same as the first term.

Rhetoricals through the year.

After the year 1886-87 Physics must be preceded by the Mathematics of the freshman year.

JUNIOR YEAR.

First Term—
Required—Latin, 2; Psychology, 3; History (*a*), 3; Constitution of the United States, 2.
Elective, 5—German 5; English Literature (*c*), 2; Historical Seminary (*c*) 2; Botany, 2; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

Second Term—
The same as the first term.

Third Term—
The same as the first term, except that Metaphysics is substituted for Psychology.

Rhetoricals through the year.

SENIOR YEAR.

First Term—
Required—Ethics, 3; Political Economy, 2; History (*b*), 3.
Elective, 7—German, 3; French, 3; English (*c*), 2; Historical Seminary (*c*), 2; Recent Philosophy, 2; Geology, 5; Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5.

Second Term—
Required—Logic, 3; Political Economy, 2; History (*b*), 3.
Elective, 7—The same as the first term.

Third Term—
Required—History of Philosophy, 3; Political Economy, 2; History (*b*), 3.
Elective, 7—The same as the first term, except that Astronomy is substituted for Geology.

The Historical Seminary must be preceded or accompanied by the course in Constitution of the United States.

All elections must be continuous through the year. No instructor is required to form a class in an elective course for fewer than four students.

FOR THE DEGREE OF BACHELOR OF SCIENCE.

FRESHMAN YEAR.

First Term—
Required—Spherical and Analytical Trigonometry, 3; French, 5*; English (*a*), Rhetoric, 2; Botany, 2; Chemistry, 4.

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* Students who enter as freshmen from other schools with Latin as their preparatory language, will take German instead of French, in the freshmen and sophomore years.

SECOND TERM—
Required—Higher Algebra, 3; French, 5; English (*a*), Rhetoric, 2; Botany, 2; Chemistry, 2; Mineralogy, 3.

THIRD TERM—
Required—Analytical Geometry, 3; French, 5; English (*a*), Rhetoric, 2; Botany, 2; Chemistry, 4.

SOPHOMORE YEAR.

FIRST TERM—
Required—Physics, 3; Physiology, 2; Practical Anatomy, 1; French, 2*; Free-hand Drawing, 1.

Elective, 7—Chemical Laboratory, 5; Botanical Laboratory, 5; Calculus, 5; English Literature (*b*), 2; Constitution of the United States, 2; German, 2†.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term.

Rhetoricals through the year.

JUNIOR YEAR.

FIRST TERM—
Required—Psychology, 3; Political Economy, 2.

Elective, 10—Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5: French, 5; Mathematics, 3; English Literature (*b*), 2; History, (*a*), 3.

SECOND TERM—
The same as the first term.

THIRD TERM—
The same as the first term, except that Metaphysics is substituted for Psychology.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—
Required—Geology, 5.

Elective, 10—Chemical Laboratory, 5; Physical Laboratory, 5; Botanical Laboratory, 5; Histological Laboratory, 5; Zoological Laboratory, 5; Ethics, 3; English Literature (*c*), 2; History (*a*) or (*b*), 3; Constitution of the United States, 2; Historical Seminary, (*c*), 2; French, 2.

SECOND TERM—
The same as the first term, except that Logic is substituted for Ethics.

THIRD TERM—
Required—Astronomy, 5.

Elective, 10—The same as in the first term, except that History of Philosophy is substituted for Ethics.

Historical Seminary must be preceded or accompanied by the course in Constitution of the United States.

All elections must be continuous through the year. No instructor is required to form a class in an elective course for fewer than four students.

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† Open to students who have had two years of German.

TECHNICAL COURSES.

FOR THE DEGREE OF CIVIL ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science, except that Physiology is substituted for Botany.

SOPHOMORE YEAR.

First Term—Land Surveying, 4; Projection Drawing, 3; Physics, 3; French, 2; Analytical Geometry, 5.

Second Term—Descriptive Geometry, 3; Lettering and Platting, 2; Physics, 3; French, 2; Calculus, 5.

Third Term—Railroad Surveying, 5; Physics, 3; French, 2; Calculus, 5.

Rhetoricals through the year.

JUNIOR YEAR.

First Term—Astronomy and Geodesy, 3; Topographical Work, 2; Geology, 5; Analytical Mechanics, 5.

Second Term—Astronomy and Geodsey, 2; Stereotomy, 3; Geology, 5; Economic Geology, 5.

Third Term—Astronomy and Geodesy, 3; Shades, Shadows, and Perspective, 3; Bridge Strains, 5; Strength of Materials and Hydraulics, 5.

Rhetoricals through the year.

SENIOR YEAR.

First Term—Civil Engineering, 5; Physical Laboratory, 5; Bridge Designing, Drawing, and Specifications, 3; Political Economy, 2.

Second Term—Civil Engineering, 5; Physical Laboratory, 5; Plans, Specifications, and Estimates, 3; Political Economy, 2.

Third Term—Sanitary Engineering, 5; Physical Laboratory, 5; Plans, Specifications, and Estimates, 3; Political Economy, 2.

Rhetoricals through the year.

Two hours a week through the year for project work.

FOR THE DEGREE OF MECHANICAL ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science, except that Physiology is substituted for Botany.

SOPHOMORE YEAR.

FIRST TERM—Mechanical Laboratory, 3; Projection Drawing, 3; Physics, 3; French, 2; Analytical Geometry, 5.

SECOND TERM—Mechanical Laboratory, 3; Descriptive Geometry, 3; Physics, 3; French, 2; Calculus, 5.

THIRD TERM—Mechanical Laboratory, 3; Shades, Shadows, and Perspective, 3; Physics, 3; French, 2; Calculus, 5.

Rhetoricals through the year.

JUNIOR YEAR.

FIRST TERM—Mechanism, 2; Astronomy, 3; Geology, 5; Analytical Mechanics, 5.

SECOND TERM—Mechanism, 5; Geology, 5; Technical Drawing, 5.

THIRD TERM—Designing and Drawing, 5; Astronomy, 3; Mechanism, 2; Strength of Materials and Hydraulics, 5.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—Thermo-Dynamics and Pneumatics, 5; Physical Laboratory, 5; Metallurgy, 5.

SECOND TERM—Prime Movers, 5; Physical Laboratory, 5; Metallurgy, 5.

THIRD TERM—Mill-work, 5; Physical Laboratory, 5; Technical Drawing, 5.

Projet work two hours a week through the year.

FOR THE DEGREE OF MINING ENGINEER.

FRESHMAN YEAR.

The same as for the degree of Bachelor of Science, except that Physiology is substituted for Botany.

SOPHOMORE YEAR.

FIRST TERM—Projection Drawing, 3; Physics, 3; Analytical Geometry, 5; Analytical Chemistry, 5.

SECOND TERM—Descriptive Geometry, 3; Physics, 3; Calculus, 5; Analytical Chemistry, 5.

THIRD TERM—Shades, Shadows, and Perspective, 3; Physics, 3; Calculus, 5; Analytical Chemistry, 5.

Rhetoricals through the year.

JUNIOR YEAR.

FIRST TERM—Geology, 5; Metallurgy, 5; Analytical Chemistry, 5.

SECOND TERM—Geology, 5; Metallurgy, 5; Analytical Chemistry, 5.

THIRD TERM—Determinative Mineralogy, 5; Metallurgy, 5; Analytical Chemistry, 5.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—Surveying, 5; Analytical Mechanics, 5; Civil Engineering, 5.

SECOND TERM—Assaying, 5; Economic Geology, 5; Mining Engineering, 5.

THIRD TERM—Plans and Specifications, 5; Strength of Materials and Hydraulics, 5; Coal Washing and Mechanical Treatment of ores, 5.

Projet work two hours a week through the year.

FOR THE DEGREE OF BACHELOR OF AGRICULTURE.

FRESHMAN YEAR.

FIRST TERM—Higher Algebra, 3; English, 2; Economic Botany, 5; Chemistry, 4.

Second Term—Spherical and Analytical Trigonometry, 3; English, 2; Physiological Botany, 5; Chemistry, 2; Mineralogy, 3.

THIRD TERM—Spherical and Analytical Trigonometry, 3; English, 2; Special Botany, Grasses, etc, 5; Chemistry, 4.

SOPHOMORE YEAR.

FIRST TERM—Physics, 3; Horticulture (General Principles and Fruit Culture), 5; Analytical Chemistry, 5; Anatomy and Physiology, 3.

SECOND TERM—Physics, 3; Horticulture (Vegetable Gardening and Seed Growing), Arboriculture and Practical Forestry, 5; Analytical Chemistry, 5; Anatomy and Physiology, 3.

THIRD TERM—Physics, 3; Horticulture (Landscape Gardening, Practical Horticulture), 5; Analytical Chemistry, 5; Anatomy and Physiology, 3.

Rhetoricals through the year.

JUNIOR YEAR.

FIRST TERM—Veterinary Anatomy, 3; Mechanical Laboratory, 3; Geology, 5; Agricultural Chemistry, 5.

SECOND TERM—Veterinary Anatomy, 5; Geology, 5; Economic Geology, 5.

THIRD TERM—Veterinary Anatomy, 3; Mechanical Laboratory, 3; Agricultural Chemistry, 10.

Rhetoricals through the year.

SENIOR YEAR.

FIRST TERM—Soils, Manures, etc., 5; Domestic Animals—Varieties, etc., 5; Diseases of Animals, 5; Political Economy, 2.

SECOND TERM—Farm Crops and Tillage, 5; Breeding and Feeding Stock, 5; Principles of Treatment, 5; Political Economy, 2.

THIRD TERM—Farm Improvement and Management, 5; Dairying, Wool-Growing, etc., 5; Particular Diseases, 5; Political Economy, 2.

SHORT AGRICULTURAL COURSE.

[For terms of admission, see page 140.]

FIRST YEAR.

First Term—Physical Geography or Plane Geometry, 5; Agricultural Chemistry, 5; Plane Geometry, 5.

Second Term—Physics, 5; Agricultural Chemistry, 5; English or Mechanical Laboratory, 5.

Third Term—Botany, 5; Physics, 5; Agricultural Chemistry, 5.

SECOND YEAR.

First Term—Agriculture, 5; Veterinary Science, 5; Botany, 5; Field Measurements, 3.

Second Term—Agriculture, 5; Veterinary Science, 5; Horticulture, 5; Mechanical Laboratory, 5.

Third Term—Agriculture, 5; Veterinary Science, 5; Horticulture, 5; Mechanical Laboratory, 5.

COURSE IN VETERINARY SCIENCE.

[For terms of admission, see page 140.]

PREPARATORY.

First Term—Algebra, 5; Geometry, 5; Latin, German, or French, 5.

Second Term—Algebra, 5; Physics, 5; Latin, German, or French, 5.

Third Term—Botany, 5; Physics, 5; Latin, German, or French, 5.

FIRST YEAR.

First Term—Veterinary Anatomy, 3; Chemistry, 4; Physiology, 3; Histological Laboratory, 5.

Second Term—Veterinary Anatomy, 5; Chemistry, 2; Physiology, 3; Histological Laboratory, 5.

Third Term—Veterinary Anatomy, 3; Chemistry, 4; Physiology, 3; Histological Laboratory, 5.

SECOND YEAR.

First Term—General Pathology and Therapeutics, 5; Domestic Animals, Varieties, Adaptations, etc., 5; Pharmacy, 3; Clinic.

Second Term—Principles of Breeding, 5; Materia Medica, 5; Pharmacy, 5; Clinic and Dissections.

Third Term—Special Pathology, 5; Materia Medica, 3; Pharmacy, 5; Clinic and Dissections.

THIRD YEAR.

First Term—Special Pathology, 5; Surgical Diseases and Operations, 5; Clinical Practice, 5.

Second Term—Surgical Diseases and Operations, 5; Medical Jurisprudence, 5; Clinical Practice, 5.

Third Term—Veterinary Obstetrics, 5; Horse-shoeing and Inspection of Animal Products, 5; Clinical Practice, 5.

FOR THE DEGREE OF GRADUATE IN PHARMACY.

[For terms of admission, see page 140.]

FIRST YEAR.

FIRST TERM—General Chemistry, 4; Latin, 5; Physical Geography, 5.

SECOND TERM—General Chemistry, 2; Mineralogy, 3; Latin, 5; Physics, 5.

THIRD TERM—General Chemistry, 4; Structural Botany, 5; Physics, 5.

SECOND YEAR.

FIRST TERM—Qualitative Chemistry (laboratory work), 5; Systematic Botany, 5; Physiology, 3; Pharmacy, 2.

SECOND TERM—Qualitative Chemistry (laboratory work), 5; Physiology, 3; Medical Botany, 2; Pharmacy, 5.

THIRD TERM—Qualitative Chemistry (laboratory work), 5; Physiology, 3; Microscopy, 2; Pharmacy, 5.

THIRD YEAR.

FIRST TERM—Qualitative Chemistry (laboratory work), 5; Principles of Medicine, 5; Pharmacy, 5.

SECOND TERM—Quantitative Chemistry (laboratory work), 5; Materia Medica, 5; Pharmacy, 3; Proximate Organic Analysis, 2.

THIRD TERM—Quantitative Chemistry (laboratory work), 5; Materia Medica, 3; Toxicology, 2; Pharmacy, 5.

DEPARTMENTS AND RANGE OF INSTRUCTION.

The range of instruction in the several subjects named in the preceding schedules is more particularly defined in the following statements of the work provided in the different departments of the university:

PHYSICS.

PROFESSOR THOMAS.

For this subject ample provision has been made in the equipment of the institution. It is safe to say that, in the opportunities afforded for thorough study in it, the university already surpasses most of the institutions of the country. Its laboratory is supplied with expensive and well-selected apparatus, designed not only for illustration, but also for original research in all the leading divisions of the science. Students are directed to its use in the way of original investigation as soon as they are properly prepared to undertake such work.

The instruction in physics comprises three grades of work.

In the preparatory course, the elements or general principles of physics are taught during the second and third terms. The work consists, in the main, of a daily recitation, for which lectures by the instructor are occasionally substituted. This course is strictly elementary in its character, and is fully illustrated by experiments throughout.

During the sophomore year students in the science and technical courses have a recitation in physics on three days of each week. This course is open also to students in the arts and philosophy courses. A text-book is used, and the work consists of recitations and lectures combined. Application is here made of the student's knowledge of mathematics to the more advanced portions of physics. The formulæ representing the more important physical laws are developed, and experiment is made use of whenever necessary to the elucidation of the subject.

In addition to the above, students in civil or in mechanical engineering are required to give the equivalent of one daily recitation throughout the year to higher physics. Candidates for the degrees of bachelor of arts and bachelor of philosophy may elect the same for one year or two years, and candidates for the degree of bachelor of science, for one, two, or three years. The work in this course consists largely of laboratory practice. Lectures are given regularly to the whole class upon subjects of general interest, such as making and reducing observations and their discussion. Text-books are used and lectures given upon special subjects of study. The attempt is made to render all students familiar with methods of original research.

CHEMISTRY.

PROFESSOR NORTON.

In the freshman year of the scientific and technical courses general chemistry is taught four hours a week during the first and third terms, and two hours a week during the second. The same work is required in the courses in arts and philosophy during the first and second terms, that of the third term being elective. The subject, with its most important applications to the arts, is taught by the use of tex-book and lectures, illustrated by an ever-growing collection of the materials used in the manufactures, and by a very complete suite of experiments.

After the completion of this elementary course, those who desire to devote special attention to chemistry enter the analytical laboratory, where they can carry on their work for two years or more. This laboratory work is *required* only of students in mining. Any other student may enter the laboratory if his time and his strength permit.

The course in analytical chemistry provides full instruction in all departments of the science. In connection with the ordinary work of qualitative chemistry, the student is taught the use of the spectroscope, and of the blow pipe in determinative mineralogy. He is also employed in making various compounds, and, if his time permit, studies exhaustively one or more of the elements and its important compounds.

The course in quantitative chemistry includes both the gravimetric and volumetric methods. The analyses are at first confined to those compounds whose structure is known, and afterwards extended to such bodies as the student may require in the special branch of the science to which he desires to devote himself. Opportunity is offered for the study of coals, ores, minerals, fertilizers, soils, or of the useful and the waste products in manufactures.

If the student desire, he will also be assisted in taking up in detail topics which relate to arts in which the principles of chemistry are applied. A full course of assaying is given in the mining laboratory, which is also open to the students of chemistry.

A summary of the course is given below.

REQUIRED OF ALL CANDIDATES FOR GRADUATION.

GENERAL CHEMISTRY.

Inorganic and organic chemistry, and the application of chemistry to the arts. Organic chemistry is required only in the science and technical courses.

SPECIAL COURSE.

FIRST YEAR.

First Term. Qualitative Analysis: Exercises in Blow-pipe and Flame Reactions, Reactions in the dry way, Reactions of Single Bases and Acids.

Second Term. Qualitative Analyses: Determination of Mixtures, Blow-pipe Mineralogy, Preparation of Compounds.

Third Term. Qualtitative Analysis, Stoichiometry, Review of General Chemistry throughout the year.

SECOND YEAR.

Quantitative Analysis: Special studies in Chemistry applied to Pharmacy, to Manufactures, and to the Arts.

Text-Books.—Norton's Chemistry, Beilstein's Manual, Galloway's Qualitative Chemistry, Will's Analytical Chemistry, Classen's Quantitative Chemistry, Fresenius's Quantitative Chemistry.

Books of Reference.—Watt's Dictionary of Chemistry, Handwœrtenbuch der Chemie, Gmelin's Hand-Book of Chemistry, Wagner's Chemical Technology, Graham-Otto's Chemie, Rose's Analytischen Chemie, Hoppe-Seyler and Gorup-Besanez's Physiologischen Chemie, Elderhorst's Determinative Mineralogy, Fresenius's Zeitschrift.

AGRICULTURAL CHEMISTRY.

PROFESSOR WEBER.

The rooms in the chemical laboratory assigned to the department of agricultural chemistry have been fitted up in the most approved manner. The working laboratory for students contains twenty-four desks conveniently arranged and supplied with gas and water. Evaporating hoods for the evaporation of acids and the generation of noxious gases are placed on two sides of the laboratory, within easy reach of the students' desks. From this laboratory there is direct entrance to the lecture-room at one end and to the balance-room and general store-room at the other. The laboratory is amply supplied with the necessary apparatus for the work to be done.

Candidates for the degree of bachelor of agriculture take three full terms of nstruction in this department in the junior year. Two hours of each week throughout the year are devoted to lectures and recitations on the applications of chemistry to agriculture, and on the remaining three days of the week two hours daily are spent in advanced analytical work pertaining to soil, water, fertilizers, manures, feeding stuffs, milk, butter, cheese, etc.

Students taking the short agricultural course receive three full terms of instruction in this department in the first year. The work of the first two terms embraces the principles of chemistry, chemistry of the non-metals and organic chemistry, as well as a complete course of qualitative analysis. In the spring term the applications of chemistry to agriculture are made a special study, both in the lecture-room and in the laboratory.

ZOOLOGY AND COMPARATIVE ANATOMY.

PROFESSOR TUTTLE.

The work of the department comprises the study of animal life alike from the anatomical and the physiological aspect. The department is now equipped with the necessary collections, preparations, and apparatus for thorough and efficient study of the organization of representatives of each of the leading groups of the animal kingdom, and particularly for work in the physiological anatomy of the higher animals, in histology, and in practical and experimental physiology.

Members of the freshman class in all the technical courses (except the agricultural) receive during the first two terms of the year instruction in this department in the elements of anatomy and physiology. The same work, with an additional hour each week in practical anatomy, is required in the sophomore year of the courses in science and agriculture, and is elective in the sophomore year of the courses in arts and philosophy. It is the object of this instruction to impart to these students such general knowledge of the structure and functions of their own bodies as will serve as a guide to their maintenance in a state of health and usefulness, as well as to direct their attention to the phenomena of life as manifested in an organism, which, while it is the most complex, is at the same time the most familiar of living things. Martin's *Human Body* is used as a text-book, accompanied by lectures, and by anatomical, histological, and physiological demonstrations. The third term is devoted to a brief comparative study of the organization of the domestic animals and other closely allied forms, lectures and demonstrations forming the means of instruction.

In addition to the work above indicated, candidates for the general degrees have open to their election at the beginning of the junior and senior years, advanced work in this department. The first year of this work, done chiefly in the dissecting room and the laboratory, directed by weekly lectures and supplemented by collateral reading, is devoted mainly to the practical study of physiology with its necessary adjuncts of histology and physiological anatomy. It has for its object, to prepare the student for the intelligent study of the breeding, care, and treatment of the domestic animals, to lay the foundations for the study of medicine, both human and veterinary, and to give the general student a clear conception of the intimate structures and activities of the living body.

But one other institution in the west offers to undergraduates facilities equal to those afforded here, in this work. A few words, therefore, concerning the equipment of the department will not be out of place.

The new dissecting-room is large, convenient and well-lighted, and is amply supplied with all necessary material and appliances. The work done in this place is confined to the practical study of the anatomy of the lower animals (the human body not being dissected here); students looking to the medical profession can, however, acquire an experience in anatomical manipulation and a knowledge of the normal appearance of organs that will prove of great future service.

The laboratory is excellently equipped for the study of histology and for practical histological work. It is abundantly provided with all necessary reagents for the hardening and preservation of the various tissues and organs of animals, and with injection apparatus, freezing and imbedding microtomes, etc., of the most recent and improved patterns. Each student is supplied with an excellent microscope (with powers ranging from sixty to four hundred diameters), and with the necessary materials and apparatus for the staining and mounting of preparations, and is required to familiarize himself with these processes by repeated practice, as well as o acquire a knowledge of the characteristics of tissues and the structure of organs by their direct and continued study. In the course of the year each student prepares for himself a series of mounted sections of permanent value.

The appliances of the laboratory for practical and experimental work in physiology have recently been greatly increased. In addition to a full supply of the chemical apparatus and reagents necessary for the examination of food-stuffs, digestion-products, the blood, the secretions, etc., there have been provided a number of the most important pieces of apparatus used for the demonstration and study of the physical and mechanical processes of the body. Among these may be mentioned appliances for the registration of phenomena by the graphic method, such as a revolving cylinder with Foucault's regulator; a polygraph for projection; an excellent pendulum myograph with the accompanying moist-chamber, electric signal, and chronograph, recording one hundred vibrations per second; Mosso's apparatus for the study of the variations of blood-pressure in the human body; recording manometers; sphygmograph and cardiograph (recording); sets of Marey's tambours, etc. Further additions in this direction will constantly be made.

The following hand-books are required by the student during the first year's work in this laboratory:

Practical Physiology (Foster and Langley).
Essentials of Histology (Schæfer).
A Text-Book of Physiology (Foster.)

Students also have access to a collection of standard works, belonging to the department, and to the private library of the professor in charge.

The farther advanced work of this department, open to those who have completed the first year's work above described, deals with the phenomena of animal life from the morphological rather than the physiological side, and is intended chiefly to meet the wants of those who expect, as teachers or in other capacities, to devote a portion at least of their lives to work in biological science. While the work of each student will be arranged in great measure in accordance with his individual aptitude and purposes, all will receive special training in microscopical manipulation and in the more elaborate processes of histological technique, and are expected to devote a large portion of their time to histological and embryological research. Lectures will be given each year upon one of the great divisions of the vertebrata, in which the organization, development and classification of its members are discussed; upon the comparative anatomy and histology of the apparatus of one or another of the principal animal functions; or upon some question in general morphology or philosophic zoology.

GEOLOGY AND PALEONTOLOGY.

Professor Orton.

The university is able to present unusual advantages for the study of geology. By act of the legislature it has been put in possession of all the collections made by the late state geological survey, and these collections have been supplemented by valuable aditions of fossils and minerals from various sources. The state collection embraces a very complete representation of every geological formation shown in Ohio.

In the preparatory course one term is given to physical geography. General geology is elective in the first two terms of the senior year of the course in arts and philosophy. It is required in the first two terms of the senior year of the course in science, and in the first two terms of the junior year of the courses in engineering and agriculture. Economic geology is required in the second term of the senior year of the course in mining engineering, and in the second term of the junior year of the courses in civil engineering and agriculture.

LeConte's *Elements of Geology* is made the basis of the instruction in the general course; economic geology is taught by lectures.

Students desiring to pursue geology further can elect it as one of their studies throughout the senior year In this year, particular attention will be given to the geology and paleontology of Ohio, for the illustration of which subjects the museum affords ample materials. These subjects will be taught by lectures, by practical work in the museum, and as far as possible by field practice.

Text-books and Works of Reference — LeConte's Elements of Geology, Dana's Manual of Geology, Lyell's Principles of Geology, Nicholson's Manual of Paleontology, Geological Reports of Ohio and of other states.

AGRICULTURE.

PROFESSOR TOWNSHEND.

The university recognizes its obligations, imposed in the terms of the grant on which it is founded, to the great industrial interests of agriculture. This obligation it aims to meet in various ways. It fixes its standard of admission so that students may enter its courses from the better class of common schools. It provides for thorough instruction in the branches of science on which agriculture depends. It has established a professorship of theoretical and applied agriculture. It has established a professorship of horticulture and botany. It has laid down a special course leading to the degree of bachelor of agriculture a short and practical course of two years in agriculture, and full course leading to a degree in veterinary science. Its professors devote much time and work every year attending and lecturing at farmers' institutes throughout the state.

While it is believed that the varied and complex questions with which the farmer has to deal, justify and require, for their most successful treatment, the extended and thorough courses of study necessary for the degree of bachelor of agriculture, it is still recognized that comparatively few will return from a six years' course of study to the farm again, and, therefore, all possible advantages are offered to young men from the country who enter the institution for a shorter time. The work of the department of agriculture is shaped so as to give to this class as large a measure of service as possible for whatever time they are on college ground.

There are three years of work provided for the student in the department of agriculture. In the first year, soils are made a subject of examination, their geological relations and origin are explained, their composition is shown, and how it is determined; the special adaptations of soils to particular crops and modes of culture are shown, and how to increase or restore exhausted fertility; the management of pastures and meadows; the character and value of the different grasses, clovers and other forage plants; the culture of field crops, such as corn, wheat, oats, barley, rye, potatoes, etc.; also the value and application of animal manures, marl, gypsum, wood-ashes, lime, superphosphate, guano, and city sewage.

The work named above occupies the first and second terms. During the remainder of the year the following subjects are treated: work of the farm and improvements; drainage, draining tools, and the manufacture of drain-tiles; irrigation, its value and methods; farm roads and how to make them; fences, material, construction, and cost; rural architecture, applied to the erection of farm houses, barns, stables, etc.; farm machinery.

The second year is mainly spent on the following topics: The natural history, description and adaptation of various domestic animals — horse-training, cattle feeding, dairy management, wool-growing, etc.

The work of the third year is spent on the general subject of veterinary science. The range of instruction can be learned from the topics named below: general principles, causes, symptoms, elements of disease; classification of diseases, principles of treatment, and remedial agents, particular diseases and operations. These are carefully studied, and, so far as opportunity can be obtained, diseases are treated, and operations made, under inspection of the class.

By reference to another page it will be seen that a shorter course in agriculture has been arranged for the benefit of students whose time is limited.

VETERINARY SCIENCE.

Recognizing the claims of the vast live stock interests of the state, the great damage done to them every year by imported and indigenous, contagious and infectious diseases, the continually enhancing value of domesticated animals, and the necessity of having reliable and well-educated veterinarians, on whom the breeders and stockraisers of Ohio can rely for sound advice, not only in cases of sickness among their animals, but also when epizootic, contagious, or infectious diseases are approaching, the trustees of the Ohio State University last year established a new department for the purpose of educating veterinarians, in other words, a veterinary school. Believing, however, that superficial knowledge is often worse and more dangerous than ingnorance, particularly in medicine, a thorough and complete course was provided for, and the requirements for admission to the veterinary course proper, which, it was determined, should be three years, were made of the same grade as for the second preparatory year of the other university departments. Therefore, a student who can comply only with the requirements of admission to the first preparatory year, will have to take preparatory studies for one year before he can enter the veterinary course proper. During the three years of the latter all branches of veterinary science are taught in a most thorough manner, so that a student who passes his examinations, and graduates at the completion of a full course, will be a well-informed and competent veterinarian, and be at home not only in the common branches of veterinary science, such as veterinary anatomy, physiology, surgery, pathology, therapeutics, obstetrics, principles of horseshoeing, etc., but also in the just as important auxiliary branches, such as chemistry, botany, histology, microscopy, pharmacy, the laws of hygiene, the laws of breeding, forensic veterinary medicine, veterinary sanitary police, etc.

Tuition is free, and the advantages offered are unsurpassed and increasing from year to year. The various branches of veterinary science are divided among seven well-qualified professors, and several well-equipped laboratories are open to the veterinary students. For practical instruction a free clinic is held every day, and patients desired to be kept on the grounds for treatment find suitable accommodations in a veterinary hospital, while all the medicines prescribed are prepared by the students in the veterinary dispensary. Besides that, experiments and original investigations in regard to animal diseases, as to their causes, prevention, and treatment, are constantly going on in the veterinary department, under the auspices of the Ohio agricultural experiment station, connected with the university. The veterinary students, therefore, have an opportunity to become practically acquainted with the latest methods of investigating infectious and contagious diseases, and with the disease-producing germs in relation to, and their action upon, the animal organism. As there is no charge for tuition, the incidental fees are the same as in the other departments, viz.: five dollars a term, and from two to ten dollars a term in the laboratories to pay for the material used.

HORTICULTURE AND BOTANY.

Professor Lazenby.

The instruction in botany begins with the first year of the preparatory course, one term of which is devoted to structural and systematic botany. Further instruction is given in each of the following subjects: economic botany, vegetable physiology, vegetable histology, gramineæ, compositæ, and other special groups; ferns and fungi. Their arrangement, as regards the collegiate terms and years, is seen in the tabulated statement of the different courses of study.

The instruction is given by lectures in connection with laboratory practice, supplemented by field-work or class excursions.

The practical bearings of the science are made prominent in all the instruction given. In fungi, special study is made of those forms producing rust, mildew, blight, etc., which prove so destsuctive to cultivated plants.

In economic botany, besides a study of the special characteristics, geographical distribution, and distinctive properties of all the prominent natural orders, the history, uses, and importance of the different economic species, included in their orders, are fully considered.

The study of horticulture comprises lectures and recitations in the class-room, supplemented by observation and practice in the gardens and orchards. It is treated as an art based on science. The instruction continues throughout the year. The first term is devoted to a study of the general principles of horticulture and fruit culture. Under the first general subject the following are among the topics considered: horticulture, as a profession, its relation to science: location for horticultural work; implements, fertilizers, draining and irrigation, weeds and insects, management of help, marketing, etc.

The course in fruit culture embraces a study of the origin, history, methods of propagation, pruning and training, harvesting and marketing, insect enemies, diseases and varieties of both the small and large fruits.

In arboriculture and forestry, special attention is given to the influence of forests upon climate, the value of trees for timber and ornament, the best methods of culture, and a history of different varieties.

The instruction in vegetable culture includes kitchen and market gardening and seed-growing. Among the subjects considered are: location of the garden, laying out ground, draining, special preparation of soil, irrigation, management of composts, commercial fertilizers, implements, selection of seed, construction and management of green-houses, hot-beds, cold-frames; special garden crops, history, cultivation and varieties of each; growing seed for home use and for market; the family kitchen garden, etc. In connection with the lectures, experiments, such as testing the vitalty and germinating power of different seeds, are conducted in the laboratory.

The third term is devoted to practical floriculture and landscape gardening. The general subject is divided into the following topics: window gardening, general management of house-plants, hanging-baskets, climbing vines, flowering bulbs, ferneries, Wardian cases, etc.; out-door flower-gardening, commercial flower-gardening, lawns, walks and drives, ornamental shrubs and trees. A well-stocked green-house, flower-beds in the borders, and a considerable collection of ornamental shrubs and trees on the college grounds afford valuable means of illustration in the study of the above subjects.

MATHEMATICS AND ASTRONOMY.

PROFESSOR COMSTOCK.

The instruction given in this department commences in the preparatory course with elementary algebra, which extends through the fall and winter terms of the first year, and is followed in the second year by plane and solid geometry and plane trigonometry. The work of these two years comprises all of Wentworth's Elements of Algebra except the first five chapters, with which the student is presumed to be acquainted before entering the department; all of Wentworth's Plane and Solid Geometry and the simpler parts of Chauvenet's Plane Trigonometry, omitting most of the analytical work. In the geometry prominence is given to the solution of original problems. This work is required of all candidates for admission to the regular college classes.

The collegiate work in mathematics begins in the first term of the freshman year with analytical and spherical trigonometry (Chauvenet) followed by higher algebra (Olney) in the second, and elementary analytic geometry (Bowser) in the third term. This work is required of students in the science course and in the technical courses, and the second and third term's work are open as an elective to students in the arts and philosophy courses.

The work in mathematics in the sophomore year, required of engineering students and elective to science students, consists in the differential and integral calculus with some further work in analytic geometry. Throughout this study and also in the freshman year where practicable, attention is paid to the applications which these several branches of mathematics find in problems of physical science and engineering.

In the fall term of the junior year students in civil and mechanical engineering take up the study of spherical astronomy, including the theory of the principal astronomical instruments and the elements of the method of least squares, using in the latter subject Merriman's text-book of least squares. The instruction in astronomy is mainly by lectures. The work of this term is supplemented in the spring term by a course of practical instruction in the use of the sextant and theodolite for the determination of time, latitude, and azimuth, each student being here required to make and discuss his own observations with the application of the method of least squares wherever practicable. This study is open as an elective to science students who have obtained credit for the mathematics of the sophomore year. Such students electing this subject will, during the winter term, pursue a course of study in pure mathematics, the subject for the present year being the Newtonian Potential Function (Pierce). There may be substituted for this hereafter, in accordance with the desire of students pursuing this elective, either quaternions, determinants, or advanced work in the calculus. In the winter term of the junior year instruction in geodesy is given to students of civil engineering, special prominence being assigned to the work and methods of the U. S. coast and geodetic survey.

The study of descriptive astronomy is taken up in the spring term of the senior year by candidates for the degree of bachelor of science, and by such candidates for the degree of bachelor of arts or bachelor ot philosophy as have elected geology in the first two terms of this year. The work of the term is based upon the study of Newcomb and Holden's Astronomy, Briefer Course, supplemented by occasional lectures upon the history of astronomy, and upon its still unsettled problems. An equatorially mounted telescope by Alvan Clark & Son, of sufficient size to show plainly the more striking features of the planets and nebulæ adds to the interest and profit of this study.

CIVIL ENGINEERING.

Assistant Professor Brown.

This course is intended so to instruct the student in the true principles and sound theories of engineering that he may enter understandingly on the practice of his profession. Theory and practice are combined as far as possible. The practice follows closely the actual field and office work of engineering parties; and the endeavor is made to qualify the student for any position on such parties.

The instruction is given by means of lectures, recitations, drafting, field-work, and visits to engineering structures in the vicinity. The department has a full outfit of surveyor's and engineer's instruments, such as compass, transits, level, plane-table, solar compass, chains, steel tapes, rods, etc. The student is trained in the use of these instruments until he becomes familiar with every part and with the work that can be done with each. The department has also a number of models, photographs, drawings and blue-prints for use in giving instruction in bridge works, stereotomy, and construction of various works. This collection is being increased all the while. The department has a good "dark room" and all students are practiced in making blue prints.

Text-Books and Books of Reference: Gillespie's Land Surveying; Johnson's Surveying; Hodgman & Bellows' Land Surveying; Searles' Field Engineering; Heuck's Field Book; Warren's Descriptive Geometry, etc.; Warren's Stereotomy; Mahan's Stereotomy; DuBois's Strains and Framed Structures; the works of Stoney, Burr, Green, Waddell, Boller, and others, for bridge work; Mahan's Civil Engineering; Rankine's Civil Engineering; Trautwine's Civil Engineer's Pocket Book; Haupt's Engineering Specifications; Latham's Sanitary Engineering; the proceedings of various engineering societies, and various engineering periodicals.

MECHANICAL ENGINEERING.

Professor Robinson.

This course is intended for those who desire to prepare themselves either for the profession of mechanical engineering, for superintending the construction of machinery, or for managing machinery in manufacturing establishments. In it instruction in principles is combined with practice. The former is mostly given by lectures, while the latter is confined to the mechanical laboratory.

The course includes the following special studies, all of which must be passed before taking the degree:

MECHANISM AND DRAWING—ONE YEAR.

Principles of Mechanism.
Machine Designing and Drawing.
Machine Drawing.

PRIME MOVERS AND MACHINERY—ONE YEAR.

Thermodynamics and Transmission of Fluids.
Prime Movers.
Machinery and Mill-work.

Besides the above there will be required for graduation:

Three terms of elementary Laboratory Practice.
Two terms of advanced Laboratory Practice.
One term of Machine Construction and Laboratory.
One term of Strength of Materials and Hydraulics.

EXPLANATION OF THE COURSE.

In the principles of mechanism are studied the parts of machinery by pairs; or, elementary combinations of mechanism. In this the form and arrangement of the parts necessary for securing the desired modification of motion is sought.

In machine-designing the student takes up some problem in the shape of a particular machine for a special purpose. The forms, dimensions and arrangements of the parts are decided upon, and then a drawing is carefully made of the whole. Detail drawings to regulation size are then made, and finished in shade lines, as is done in the best shops. The quality of these drawings is sufficient for the requirements of photo-engravings for illustrations upon circulars.

In thermodynamics are studied the principles which form the groundwork of all heat engines.

In prime movers are studied all kinds of heat engines, such as steam engines, hot-air engines, etc., and also wind-wheels and water-wheels.

Mill-work and machinery takes up valve-gears, fly-wheels, governors, efficiency of parts of machines, strength of parts, etc.

The mechanical laboratory is intended for acquainting the student with the materials used in machine construction, and with the forms customary in machinery; to impart a degree of skill in the use of tools, and a knowledge of the operations and practices of shops. The student uses most of the ordinary tools of the machine shop, such as the vise, hand-lathe, drilling-machine, engine-lathe, milling and shaping-machine and planer; also, the forge and anvil, the iron cupola and brass furnace and pattern-makers' tools.

The first term's work consists of the actual use of tools in executing a set of forms chosen with a view to supplying the greatest possible amount of practical instruction for the time. This is combined with weekly lectures on tools and their use.

The second term carries the above practice to the fitting together of parts. This is combined with weekly exercises in designing and drawing of machine elements, such as cranks, bearing-boxes, stud-ends, etc.

The third term is fully occupied in fitting parts carefully together, as in the joints of machinery, and in finishing the surfaces by scraping, polishing, burnishing, etc. This is in combination with a weekly exercise in the invention of simple machines for specific operations, such as bending wire staples, cutting wooden combs, etc.

The fourth term of mechanical laboratory practice is constructive. It is taken in connection with the principles of mechanism. In the latter, problems in mechanism are worked out, forms and dimensions assigned to the parts, and then these are executed in the laboratory, resulting in models of mechanical movements for the cabinet.

Projets will be assigned to the student, from time to time, on topics connected with his studies, requiring him to take indicator cards, test the efficiency of boilers, visiting manufacturing establishments, etc., and report. Such reports are neatly made out on the regulation papers of the department. These are taken, in part, for the examinations, and retained for the cabinet.

Text-Books and Works of Reference—Rankine's Steam Engine, and Machinery and Mill-work; Weisbach's Mechanics; Willis's Principles of Mechanism; Belanger's Cinematique; Zenner's Traite de la Chaleur; Neville's Hydraulics; Clausius and McCullough on Heat; Seller's Manual of Machine Tools; Shelley's Workshop; Unwin's Elements of Machine Design; Nicholson on Files and Filing.

MINING AND METALLURGY.

Professor Lord.

The course in mining engineering secures to the student careful instruction, with ample allowance of time, in three fundamental branches of the art—mining, preparation of the ore, and metallurgical treatment. These courses will comprise lectures, the study of text-books, preparation of maps, drawings, and sections, and visits to existing works, with careful reports upon them and practice in estimates and designs.

For assaying there is a full equipment of furnaces and ores for the dry assay, and the wet methods are taught in the chemical laboratory.

An ample collection of minerals is provided, comprising all species with which the mining engineer should be familiar, and to this the students have constant and familiar access.

Crystallography is taught by the aid of a complete collection of large wood models, made especially for the department and containing every common form.

Text-Books and Books of Reference.—Dana's Mineralogy, Egleston's Crystallographic Tables, Callon's Mining, Andre's Mining and Mining Machinery, Phillips's Metallurgy, Egleston's Metallurgical Tables, Rittenger's Aufbereitung, Gætschmann's Aufbereitung, Bodemann & Kerl's Assaying, Mitchell's Assaying, Von Cotta's Ore Deposits.

HISTORY, POLITICAL SCIENCE, AND ENGLISH.

Professor Knight.

HISTORY AND POLITICAL SCIENCE.

The courses offered in history are open to all students in the arts, philosophy and science courses in the junior and senior years. The work may be briefly described, as follows:

1. History (*a*), three hours a week for one year, is a comprehensive study of Continental European history to the period of the French Revolution, with special attention to the rise and fall of political, social, religious, and governmental ideas and institutions.

2. History (*b*), three hours a week for one year, comprises two courses, each for a half year. The first is a study of the French Revolution, its causes, and its effects on France and Europe, and the development of constitutional government on the continent during the present century. The second half year is devoted to the history of the English Constitution. The work in both these courses is done partly by the use of text-books and partly by lectures, accompanied by extended reading by the class, the results of which are embodied in essays and theses presented from time to time by the students.

3. History (*c*) is a historical and economic seminary course open to advanced students for the exhaustive study of special topics in the political and industrial history of the United States. In this course students are sent to original sources of information, and are expected to find and work out their own results under the guidance of the professor. This course must be preceded or accompanied by that in

4. The Constitution of the United States. This course is required in the junior year of the arts and philosophy courses, and is open to science students in the sophomore or senior years. It embraces a series of lectures on the constitutional history of the United States, and the study, by text-book, of elementary constitutional law.

5. In political economy, required for two hours a week through the senior year, the primary aim is to familiarize the student with the principles of the science, and to discuss questions of paramount importance to industrial society as it exists to-day.

ENGLISH.

The work in English language and literature extends through three years. The aim is to give the student a correct understanding and use of language, and to familiarize him with the history and nature of the literature.

1. English (*a*), two hours a week, is required of all students in the freshman year. It includes a complete study of the principles of rhetoric, and their application by the student in oral and written discourse.

2. English (*b*) comprises work for one term in the study of Anglo-Saxon, and for two terms in the history and development of English literature.

3. English (*c*) gives the student during two terms an opportunity for the direct study and critical analysis of many of the masterpieces of our literature, while the third term is devoted to a study of the growth and genesis of the English language.

FRENCH.

MISS WILLIAMS.

A two years' course in this language is provided for. In the beginning the student attends mainly to grammatical doctrine and literal versions, and afterwards to the literary contents and characteristics of what he reads. Lectures on French literature run through the second year of the course.

COURSE.

Freshman Year.

First Term—Borel's Grammaire Francaise.
Second Term—Grammar continued: Masson's French Classics.
Third Term—French Classics continued.

Sophomore Year.

For course in philosophy—

First Term—Moliere, Corneille, Racine (2); composition (1).
Second Term—Modern French Prose; Literature.
Third Term—The Classics and Literature continued.

For course in science—

First Term—Scientific French.
Second Term—Scientific French.
Third Term—Modern French Prose.

LATIN.

PROFESSOR DERBY.

Candidates for admission to the preparatory courses in arts and philosophy will be examined in the first book of Cæsar, *De Bello Gallico* and the elements of Latin grammar. Equivalents will be accepted for Cæsar. Students preparing to enter these courses are advised to master *thoroughly* Jones's, Harkness's, or Leighton's Latin Lessons. Much attention should be given to translation from English to Latin, and to the acquisition of an exact and ready knowledge of the inflections. The Roman method of pronunciation is preferred.

Latin is a required study for all regular students in the school of arts and philosophy. The course of instruction extends through the preparatory course and the first three years of the college curriculum. The exercises in this department occur daily in the preparatory and freshman years, three times a week in the sophomore year, and twice a week in the junior year.

The subjects are taught by means of text-books or lectures, and illustrated by books of reference, maps, and plans. Topics for investigation and an oral or written report of results are assigned to members of the advanced classes. By such exercises an attempt is made to familiarize the student with some of the sources of our knowledge of classical antiquity and with approved methods of studying them.

The main purpose of the earlier portion of the course is to give each student a ready command of the forms of the language, with such knowledge of its vocabulary and ordinary constructions as will enable him in the latter period of his study to pay attention chiefly to the literature, polity and life of the Roman people.

It is believed that by this method a good measure of the intellectual discipline gained in linguistic study may be secured, together with that insight into the elements of ancient civilization which is indispensable to the proper understanding of the history, philosophy, politics, and law of modern times.

Candidates from other schools will be expected to meet the following requirements in Latin for admission to the Freshman class:

1. Latin Grammar;
2. Latin Prose Composition, Allen's, Part I;
3. Cæsar's Gallic War, Books I-III;
4. Virgil's Aeneid, Books I-VI;
5. Cicero, six orations.

PREPARATORY COURSE.

First Year.

First Term—Cæsar; Grammar reviewed.
Second Term—Virgil.
Third Term—Virgil.

Second Year.

First Term—Cicero.
Second Term—Cicero.
Third Term—Virgil; Latin Composition.

COLLEGE COURSE.

Freshman Year.

First Term—Cicero, *De Amicitia;* Latin Composition.
Second Term—Livy.
Third Term—Horace, *Odes.*

Sophomore Year.

First Term—Tacitus, *Histories.*
Second Term—Terence.
Third Term—Horace, *Epistles.*

Junior Year.

First Term—Quintilian.
Second Term—Martial.
Third Term—Mediaeval Latin.

GREEK.

PROFESSOR SMITH.

The course of Greek comprises four years of college work, arranged as follows:

Freshman Year.

First Term—Goodwin's Grammar, and White's Lessons.
Second Term—Grammar and Lessons; Xenophon's *Anabasis*, Book I.
Third Term—*Anabasis*, Books II and III; Greek History.

Sophomore Year.

First Term—Xenophon's *Memorabilia*; Greek Prose Composition.
Second Term—Herodotus, Selections; Greek History.
Third Term—Homer, *Odyssey*; Greek Literature.

Junior Year.

First Term—Thucydides, Books I and II; Greek Literature.
Second Term—Plato; Apology and Crito.
Third Term—Demosthenes, *Olynthiacs*; The Attic Orators.

Senior Year.

First Term—Homer, *Iliad*; Epic Poetry.
Second Term—Sophocles, *Antigone*; Greek Antiquities.
Third Term—Pindar, *Selections*; Greek Etymology.

Instruction by means of text-books, lectures and works of reference throughout the entire course.

PHILOSOPHY.

PRESIDENT SCOTT.

The work in philosophy extends through the junior and senior years of the courses in arts, philosophy, and science, all of which is required except that in the senior year of the course in science.

Junior Year.

First Term—Psychology, 3.
Second Term—Psychology, 3.
Third Term—Metaphysics, 3.

Senior Year.

First Term—Ethics, 3.
Second Term—Logic, 3.
Third Term—History of Philosophy, 3.

During the two terms of psychological study the best authorities are consulted, and essays are written by the class. It is the constant aim to lead the student, as fast as possible, to dealing at first hand with the profound and interesting problems of mind. For this end the conversational method has been found most effective, and is much relied on in teaching this as well as the other subjects of the department, but text-books and lectures are also employed.

In the study of metaphysics, the nature, validity, and source of the fundamental conceptions of human thought are investigated, and their relations to the various departments of knowledge receive careful attention.

The term in ethics is devoted to the study of the prevailing theories of morals, and an effort is made to form a critical estimate of their truth and value. The nature of conscience, the ideas of right and obligation, their sources and their authority, and the relation of ethics, on the one hand, to the intellectual, and on the other, to the practical life, are successively taken up and considered.

Logic is studied in both its deductive and its inductive form, and copious examples are introduced. The diligent student may, even in the brief time allotted to the study, obtain a fair elementary knowledge of the subject, and thus open the way for an intelligent direction of his powers in all his intellectual pursuits.

The work in this field is completed by a term in the history of philosophy. With Schwegler as a text-book, the first names in the history of thought are studied, their relations developed, and the progress of opinion traced through its successive stages. The present state of psychology, ethics and metaphysics is reviewed in their relations to the past, and their significance and tendencies are investigated under the guidance of history.

Recent philosophy is offered as an elective in the senior year of the courses in arts and philosophy.

MILITARY SCIENCE AND TACTICS.

Lieutenant Blocksom.

The officer in charge of this department is a graduate of West Point, and has been detailed for this service by the general government. All students, except juniors, seniors and sophomores, and such others as can show reasonable ground for exemption, are required to take part in the drill. This exercise occupies about an hour five days in each week. The following is the roster of the officers of the battalion:

FIELD.

Cadet Captain	Howard Hagler.

STAFF.

Cadet Captain and Adjutant	W. B. Norris.
" " Quartermaster	Seth Hayes.
" Sergeant-Major	A. T. Heath.
" Quartermaster-Sergeant	J. F. Mellott.

BAND.

Leader—Cadet	W. A. Daugherty.
First Sergeant	W. L. Whitacre.

"A" COMPANY.

Cadet Captain	H. T. Stephens.
" First Lieutenant	W. G. Johnson.
" Second "	C. C. Ewing.
" First Sergeant	C. G. Smith.
" Second "	G. H. Mock.
" Third "	L. H. Bricker.
" Fourth "	L. W. Innis.
" Corporal	L. A. Lamb.
" "	J. E. McCulloch.
" "	E. H. Angier.

"D" COMPANY.

Cadet Captain	Wm. S. Crawford.
" First Lieutenant	Thos. G. Youmans.
" Second "	J. C. Ritchey.
" First Sergeant	J. E. Thompson.
" Third "	K. C. Egbert.
" Corporal	C. H. Ellis.
" "	L. F. Kiesewetter.
" "	Perry Grimsley.

"B" COMPANY.

Cadet Captain	C. Casper Oviatt.
" First Lieutenant	Theo. Griffin.
" Second "	Walter Braun.
" First Sergeant	R. B. Smith.
" Second "	M. A. Smith.
" Third "	C. Swigart.
" Corporal	F. H. Gale.
" "	W. D. Rees.

"C" COMPANY.

Cadet Captain	R. L. Carle.
" Second Lieutenant	D. A. Rannells.
" First Sergeant	H. H. Ward.
" Second "	R. Peterson.
" Third "	P. Fischer.
" Corporal	H. S. Mitchel.
" "	E. S. Kershaw.
" "	E. Sigerfoos.

THE SCHOOL OF PHARMACY.

By a recent statute of Ohio it is made compulsory upon all persons desiring to engage, either as proprietor or assistant, in the retail drug business, to appear before the state board of pharmacy and pass an examination to test their competency in compounding and dispensing the prescriptions of physicians. The violation of this law is made a misdemeanor and is punishable by a heavy fine.

The university, recognizing its obligation to respond as far as possible to every demand for advanced knowledge and training, opened a school of pharmacy at the beginning of the past year. Although the establishing of the department was not announced until shortly before the beginning of the term and no full course was offered, yet a sufficient number of students presented themselves to constitute a good working class.

The instruction in pharmacy proper has been placed in the hands of Mr. George B. Kauffman, well known as the senior member of the firm of Kauffman, Lattimer & Co., who brings to the work not only the knowledge and zeal required, but also the extensive facilities of his private laboratory. In the instruction in pharmacy the following subjects are treated during the first year: laws relating to pharmacy, the pharmacopœias, pharmaceutical processes, simple galenical pharmacy, classification of drugs, pharmacognocy, and officinal pharmacal preparations. The remaining year deals with officinal pharmacy, extemporaneous pharmacy, prescription practice, pharmacognocy, practical operative pharmacy, and dispensing. The other studies of the course find their proper place in connection with the regular classes of the university.

A course of three years is now offered. The studies prescribed include those indicated by the requirements of the state board of pharmacy and other branches which bear most directly upon the work of the pharmacist. The course and the requirements for admission are printed elsewhere.

The degree of Ph. G. (graduate in pharmacy) will be conferred on those who complete and pass satisfactory examinations on the required course of study.

DRAWING AND DESIGN.

Mr. Bradford.

In mechanical drawing instruction is given in elementary projection drawing, and, to special students who may desire it, advanced mechanical drawing, such as architectural or other construction drawing.

In free hand drawing instruction is given in elementary work. Outline drawing from the flat copy and from models, and in shading from models and casts, water-color painting from groups of objects, oil painting from the copy, and groups in still-life, crayon portraits from copy or photograph, and modeling in clay, are also taught.

AGRICULTURAL EXPERIMENT STATION.

Professor Townshend, *Director.*

The state has established an agricultural experiment station which is now located at the university. The station is sustained by appropriations from the state.

The experiments and investigations will be carried on, both in the field and i the laboratory, and will deal with the following great agricultural interests, viz

(1) grain raising; (2) stock farming and dairy husbandry; (3) fruit and vegetable culture; (4) forestry.

The station is prepared to test varieties; to analyze and test fertilizers and manures; to examine seeds that are suspected of being unsound or adulterated; to identify and name weeds and other plants; to investigate and describe, when known, the habits of injurious and beneficial insects; and other work of a similar character that properly comes within its province.

STATE METEOROLOGICAL BUREAU.

PROFESSOR THOMAS, *Director.*

In 1882 the legislature established a state meteorological bureau, of which the professor of physics is the director. There is provided at the state university a full equipment of standard instruments for meteorological observations. Corresponding equipments are also provided for voluntary observers throughout the state. At the present time the bureau receives regular reports from about forty stations.

STATE FORESTRY BUREAU.

This bureau has been established by the legislature and located at the university. The board of directors has organized and begun its work. What has been done is announced in the annual report of the board.

GENERAL INFORMATION.

FOUNDATION.

The university was founded in accordance with an act of congress passed July 2, 1862. Under this act the state of Ohio received from the United States six hundred and thirty thousand acres of the public land for the purpose of establishing a college "where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The fund arising from the sale of this land now aggregates, within a little, the sum of five hundred and thirty-eight thousand dollars, which is held in trust by the state and yields an annual income of thirty-two thousand two hundred and seventy dollars.

The university also received three hundred thousand dollars from Franklin county and twenty-eight thousand dollars from citizens of Columbus, which were expended in the purchase of a farm within the limits of the city of Columbus, in the erection of buildings, and in the equipment of the departments of instruction. The total value of endowment and property at the present time exceeds one million one hundred thousand dollars.

For several years the legislature has made annual appropriations to supply new and growing needs. The total income of the university last year was over sixty-two thousand dollars. The incomes of the agricultural experiment station and the meteorological bureau, which were also expended at the university, raised the aggregate to more than seventy thousand dollars.

The trustees and faculty have endeavored to direct the policy of the university in accordance with the excellent provisions of the act of congress on which its endowment is based. While the subjects commonly included in college studies are taught with efficiency and thoroughness, special provision has been made for extensive and practical instruction in the various branches of natural science and their applications. The leading industries of the state — agriculture, veterinary, pharmacy, mechanics, mining and engineering—have each a separate department and a special course of study provided, while the sciences that underlie these arts form special departments and are taught by extended courses in well equipped laboratories.

LOCATION.

The university is situated within the corporate limits of the city of Columbus, two miles north of the union depot. Two lines of street railroad reach the grounds. New students and strangers wishing to visit the institution should take a white car going northward; or, if they wish to reach the dormitories, they should take a green car.

GROUNDS AND BUILDINGS.

The university possesses about three hundred and twenty-five acres of land, the most of which is devoted to agricultural purposes. Forty acres have been reserved for a campus, which is being improved year by year. There are ample grounds for military drill, athletic sports, lawn tennis courts, and a base ball ground.

There are four buildings devoted to the immediate work of the university. The largest of these contains the president's room, the chapel, the library, the geological museum, the art hall, lecture rooms, two laboratories, the society halls, and the office of the state meteorological bureau. Another contains the mechanical department; another, the departments of general chemistry, agricultural chemistry, and mining engineering; and the fourth the department of botany and horticulture, with green-house and the offices of the state agricultural experiment station. There are two dormitories accommodating more than eighty students, and seven residences for professors. Besides these there are numerous buildings occupied by the farm department and the agricultural experiment station.

THE LIBRARY.

The library contains many valuable books, especially reference books and works in science, history and philosophy. It is in almost constant use by the students for reading and reference. The room is also supplied with leading periodicals, care being taken to select such as will afford to the student the freshest and ablest discussions on the subjects of current interest and the latest thought in the several departments of instruction.

The legislature has recently appropriated $9,000 for the library, by which this important adjunct of the university has been greatly improved. Additions have been made in science, history, literature, and philosophy, and the whole has been placed in a large and well-lighted room especially fitted up to receive it. The number of books is about seven thousand.

The state library, containing about sixty thousand volumes, is accessible to students, and constitutes a valuabe auxiliary to the university. The city library of Columbus with its sixteen thousand volumes may also be used.

THE LABORATORIES.

Much of the work in science is performed in laboratories by the students themselves. To promote this, which is now universally recognized as the true method of teaching science, the trustees and faculty have been at great expense and pains to provide the best possible facilities. The number of laboratories now in operation is seven—the physical, the chemical, the physiological, the mechanical, the mining and assay, the botanical, and that for agricultural chemistry. These are supplied with extensive and well selected apparatus, and afford the means not only for illustration and practice, but also for original investigation. An appropriation of twenty-five hundred dollars has been recently expended to procure additional apparatus for the mechanical laboratory; and the same amount for equipping the laboratory of agricultural chemistry.

RELIGIOUS SERVICES.

Daily prayers are held in the university lecture-room, at which the attendance of all students is required, except when excused for special reasons. The services are usually conducted by the president, but sometimes by other members of the faculty and by visiting clergymen of various denominations.

LITERARY SOCIETIES.

The Alcyone and Horton literary societies have commodious and well-furnished halls in the main building. The Browning literary society, which is composed of young ladies, also has a hall, which has been neatly and tastefully fitted up. All these societies meet weekly. The membership is large, and the work is vigorous and effective, affording to the student a very desirable training in composition, public speaking and parliamentary order.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The university branch of this association has rented and furnished a pleasant room. Meetings are held on Saturday evening for devotional exercises and Bible study. On Sunday afternoon the association is usually addressed by a member of the faculty, or a resident minister. The organization has steadily grown in membership and in influence, and gives promise of great usefulness.

TERMS AND VACATIONS.

The first term of each college year, shall begin on the Wednesday following the tenth day of September, and shall close on the Wednesday preceding Christmas. The second term shall begin on the Wednesday following the first day of January, and shall close on the Wednesday following the twenty-sixth day of March. The third term shall begin on the Wednesday following the second day of April, and shall close on commencement day, which shall be the Wednesday following the eighteenth day of June.

REGISTRATION DAY.

All students are required to register and procure their class cards on the first Wednesday of each term; and no student, after having once been admitted to the university, will be allowed to register after the close of registration day, except on the presentation in writing to the secretary of his committee of a satisfactory reason for his delinquency.

College work will begin in accordance with the program on the first Thursday of each term.

ADMISSION.

The university is open to students of both sexes. Students entering from other colleges are required to bring certificates of honorable dismission.

I. To the Preparatory Department.

Entrance examinations for 1887 will be held at the university June 20 and 21 and September 12 and 13—those in geography and grammar on the first day, and those in other branches on the second.

For admission to the preparatory department of the university, candidates must pass a satisfactory examination in the branches taught in the common schools, viz.: orthography, writing, grammar, geography, arithmetic, and algebra through simple equations. For admission to the preparatory courses in arts and philosophy, one year of Latin is required.

Graduates of the high schools of the state are admitted to the preparatory department without examination. Applicants having a teacher's certificate of twelve months are also admitted without examination, except in algebra, when this study is not included in the certificate, and in Latin.

II. To the College Classes.

The entrance examinations will be held on Monday and Tuesday immediately preceding commencement day, and on Monday and Tuesday immediately preceding the opening of the first term of each year.

Candidates for admission must be at least sixteen years of age, and must be provided with credentials from their last instructor or from the last institution with which they have been connected.

Candidates will be admitted to the freshman class on the completion of the work of the preparatory department, on examination in that or equivalent work, or on the presentation of diplomas from such high schools or academies as the faculty shall from time to time designate; subject, however, in the last case, to conditions in such preparatory branches as are not covered by their diplomas.

Candidates for advanced standing who do not come from some other university or college, will be examined in the studies preparatory to admission to the collegiate courses and also in such undergraduate studies as they may ask to be credited with in advance. Students who have completed at least one year's work in an approved college, and who bring explicit and official certificates describing their courses of study and scholarship, and letters of honorable dismissal, will be admitted without examination, except such as may be necessary in order to determine what credits they are to receive for work done in the college from which they have come and what courses of study they may pursue with profit in the university.

III. To Other Courses.

For admission to the short course in agriculture the requirements are the same as for admission to the preparatory department, with the exception of algebra. The entrance examinations, therefore, include orthography, writing, grammar, geography, and arithmetic. Candidates over twenty-one years of age are admitted to this course without examination.

For admission to the veterinary course the requirements are the same as those for admission to the preparatory department.

For admission to the course in pharmacy the requirements are the same as those for admission to the preparatory courses in arts and philosophy, viz.: grammar, geography, arithmetic, algebra, and Latin. At present candidates who have had two years' experience in a drug store will be admitted without examination in algebra or Latin.

For admission to either of these courses high school diplomas and teachers' certificates for a year will be accepted in lieu of examination in the subjects which they include.

IV. To Special Studies.

Students who desire to pursue special lines of work in the collegiate department of the university and do not desire to become candidates for degrees, will be admitted on the following conditions:

1. When the greater part of the special work lies in the course in arts or philosophy, the regular entrance examinations must be passed.

2. When the greater part of the special work lies in science or technical courses, the examination in the language required for admission may be omitted at the option of the appropriate committee.

3. Applicants who are not less than twenty one years of age may, after passing examination for admission to the preparatory department, be excused by the appropriate committee from such studies or examinations in the preparatory course as it may deem best; provided that, if any such student afterward becomes a candidate for a degree, he shall pass the omitted examinations at least one year before the degree is conferred. In the mechanical department the limit in age for such students shall be eighteen years.

MATRICULATION.

Each student on being admitted to any college class, shall signthe matriculation book provided for the purpose, and shall be certified by the secretary of the faculty to the secretary of the appropriate committee with a statement of the course and class to which he is admitted, and what conditions, if any, are imposed.

Each special student on being admitted to the work of the colleg' classes, shall sign the matriculation book, and shall be certified as such to the proper secretary.

CLASSIFICATION OF STUDENTS.

The various departments of the university have been classifiedne four schools, designated as follows:

The School of Arts and Philosophy,

Including those studies which enter into the courses leading to the degrees of Bachelor of Arts and Bachelor of Philosophy.

The School of Science,

Including those studies which enter into the course leading to the degree of Bachelor of Science.

The School of Engineering,

Including those studies which enter into the courses leading to the degrees of Civil Engineer, Mechanical Engineer, and Mining Engineer.

The School of Agriculture,

Including those studies which enter into the courses leading to the degrees of Bachelor ot Agriculture and Veterinary Surgeon.

Each school is under the direction of a standing committee of the faculty, having power to act in all matters pertaining to the studies of students in each school, in the transfer of students from one school to another, and in matters of minor discipline.

Every undergraduate student enters one of the above schools. In case of irregularity he is assigned to that one in which the majority of his studies are found.

All students in each school are regarded as belonging to one of two groups; first, those whose purpose it is to enter upon one of the regular courses of study, with the expectation of taking its degree; second, those who come to the university for the purpose of pursuing some special study or line of work, and who do not expect to take a degree.

The courses of study leading to the various degrees having been arranged by the faculty in the order which is believed to be the best adapted to the general requirements of students, *all who do not belong to the second of the groups indicated*, will be required to enter upon the regular work of the college classes to which they belong, or in case of present irregularity to remove such irregularity as speedily as practicable in the manner prescribed by the committee of the school in which they are classed, and no such student will be allowed to take more or other than his regular studies without presenting a request with reason therefor to his committee and receiving its consent. Such consent may be revoked at any time when it may seem advisable to do so.

Students belonging to the second group, viz.: those coming to the university for a limited time with the definite purpose of pursuing some special line of work, will in each case enter the school in which their proposed work is chiefly included, and shall lay before the committee a statement of the end in view, the studies proposed for the accomplishment of that end, and the probable period of residence.

While it will be the purpose of each committee, in accordance with the well-established policy of the university, to allow to such students full freedom in the selection of the branches which they desire to pursue, subject only to the necessary limitations that they are prepared to take up the branches they select and that such branches are in accordance with the end proposed, it is also their intention to hold these students as regularly to the performance of their accepted schemes of work as they do the members of the first group to their prescribed courses of study; and they will refuse admission to this group to all of whose definiteness of purpose or fitness to undertake the work proposed they fail to receive satisfactory evidence.

EXAMINATIONS.

1. A written examination shall be held for each preparatory class at the close of each term.

2. A written examination shall be held for each collegiate class at the close of each term. When, however, two or more written examinations have been held during the term, the professor in charge of the department may, at his discretion, give credit for the work of the term to such students as have passed the mid-term examinations and given other satisfactory evidence of their proficiency, withont holding them for the final written examination. Such mid-term examinations shall occupy only the regular recitation hour.

3. Credit for the work of the term in any laboratory may be given without a written examination at the discretion of the professor in charge.

4. The standing of the students shall be reported as "passed with merit," "passed," "conditioned," or "failed."

5. Any student conditioned at the close of a study shall be held for an examination in that study during the following term at such time as may be designated by the professor in charge of the department in whicn the condition was incurred. When a condition is incurred during the progress of a study, the professor in charge may, at his option, require an examination during the following term (in which case proper notice must be given at the time the condition is announced), or may allow the condition to stand until the close of the following term, when, if the student passes in the work of the current term, the condition shall be removed; if he does not pass, the work of both terms shall be counted as failures.

6. The regular work of each laboratory is regarded as the equivalent of five class-room exercises per week. Two consecutive hours daily in the department is also so regarded.

7. No special or irregular student is allowed to take less than fifteen or more than eighteen hours per week of class-room work, or its equivalent, and no student conditioned in any study will be permitted to take more than the regular work of his class the following term.

8. At the close of each term students must pass in examinations in studies representing at least ten hours per week, in order to retain their connection with the university.

9. Students conditioned in studies representing ten hours per week, must pass satisfactory examinations in at least one-half of those studies before regaining their standing in college.

10. Students failing in examinations representing ten hours per week, forfeit their place in college thereby.

11. Students who fail in the term examinations, or in an examination for conditions, are required to take the study or studies in which they fail, on their occurrence in the following year, except when excused by the faculty.

12. Students failing on a re-examination for a condition, are dropped from that class, if a continuous one.

13. Absence from any examination is construed as a failure therein.

14. Students in any three-term class who fail to attain the grade "passed" at the end of more than one term, shall be required to repeat the work of the whole year, unless excused by the professor in charge; and the students in any two term class who are reported as "failed" at the end of the second term, may be required by the professor in charge to repeat both terms' work.

ABSENCES AND DEMERITS.

1. Four demerit marks shall be recorded against a student for every unexcused absence from a class or from drill; two for every unexcused failure in recitation or in drill; and one for every unexcused tardiness; and other offenses shall be rated as the faculty shall from time to time determine.

2. When any student has received ten demerit marks he shall be admonished by the president.

3. When any student shall have received twenty demerit marks notice thereof shall be sent to his parent or guardian.

4. When any student has received forty demerit marks his connection with the university is thereby forfeited.

5. No account of demerits shall be continued longer than the close of the college year.

EXPENSES.

I. College Dues.

There is no charge for tuition in any department of the university; but a charge of $5.00 a term, or $15.00 a year, is made against all students, under the head of incidental expenses, and students in the laboratories are required to pay fees to cover, in part, the cost of materials consumed, and the deterioration of the expensive instruments employed. The fee in the chemical laboratory is $10.00 per term; in the laboratory of agricultural chemistry, $8.00 per term; in the physical and mining laboratories, $7.00 per term; in the mechanical and physiological laboratories, $5 00 per term, in the botanical laboratory, $2.00 per term; in the laboratory of economic botany, $1.00 per term, and in preparatory botany, 50 cents per term. These dues are required at the opening of each term.

The payment of term bills is required of all students as a condition of admission to classes.

II. Board.

There are two dormitories on the grounds, provided for the use of students. The smaller of these affords unfurnished rooms, *rent free*, to such students as desire to board themselves, and thus to reduce their expenses to a minimum. Twenty students can be accommodated in this building, two students being assigned to each room. The expense of living in this way falls below $2.00 per week.

The larger dormitory can accommodate more than sixty students. It is, for the present, turned over to the university club, *rent free.* Board, furnished room, fuel, light and washing are, at present prices, supplied for about $3.00 per week. New students will not, however, be admitted to the club without special recommendation.

Boarding clubs are also formed in the neighborhood of the university. Within the last year five such clubs have been organized with very satisfactory results. Furnished rooms were rented at seventy-five cents to one dollar per week for each student, and the cost of board was about two dollars per week.

Board, with furnished rooms, can be obtained in private families, within convenient distances of the university, at rates varying from $4.00 to $5,00 per week. The ruling rate may be taken as $4.50 per week for young men and $5.00 for young ladies.

A uniform has been adopted, with which all members of the military organization are required to provide themselves. The cost of the uniform is about $23.00.

The expense of a college year will include the following items, viz.:

College dues	$15 00		$15 00
Board, rooms, etc., at $3.00 per week	114 00	at $4.50	171 00
Total	$129 00		$186 00

This estimate provides for light and fuel, but does not include text-books or charges for laboratory supplies. Students boarding themselves can reduce the lowest of these estimates at least $30.00, making a total of less than $100.

No buildings are provided on the university grounds for the residence of young ladies. Boarding places in respectable families are secured for young ladies who enter the institution, but the faculty is not so situated that it can exercise supervision over their conduct outside of college hours. Parents who place their daughters in the university should be well satisfied as to their discretion, or else should leave them under the care and control of the family with which they board.

OHIO STATE UNIVERSITY ALUMNI.

OFFICERS.

President—C. C. Howard	Columbus,	Ohio.
Vice-President—Mary O. Scott	"	"
Secretary—C. V. Pleukharp	"	"
Treasurer—Fred. Keffer	"	"

COLLEGE COMMITTEE.

Charles E. Higbee	5 years.
Harwood R. Pool	4 "
J. P. Jones	3 "
C. C. Howard	2 "
W. A. Dun	1 "

EXECUTIVE COMMITTEE.

Consists of officers of association.

OHIO STATE UNIVERSITY ALUMNI—NOVEMBER, 1885.

Class.	Name.	Degree.	Residence.	Occupation.
1878	Jno. F. McFadden	A. B	Columbus, Ohio	Attorney-at law—Justice of Peace.
	C. H. Dietrich	B. S	Hopkinsville, Kentucky	Teacher.
	W. A. Dun	B. S	Cincinnati, Ohio	Physician.
	Ferdinand Howald	B. S	Fire Creek, West Virginia	Mining Engineer.
	C. C. Howard	B. S	Columbus, Ohio	Analytical Chemist.
	Arthur B. Townshend	B. S	New York, N. Y	Physician.
1879	W. F. Noble	A. B	Tiffin, Ohio	Attorney-at-law.
	J. S. Humphrey	B. S	Garden City, Kansas	County Surveyor of Finney county.
	A. B. McMackin	B. S	Newberry, S. C	Clergyman.
	M. Frank Morrison	B. S	Denver, Colorado	Mrs. Prof. S. H. Short.
	Henry Snyder	B. S	Oxford, Ohio	Professor Physics, Miami University.
	B. S. Towne	B. S., E. M	El Paso, Texas	Mining Engineer.
1880	E. E. Corwin	A. B	Columbus, Ohio	Attorney-at-law.
	Arthur Cunningham	A. B	"	Book-keeper.
	H. D. Gregory	E. M	"	Civil Engineeer and Bridge Builder.
	J. P. Jones	A. B	"	Attorney-at-law.
	J. H. McCormick	B. S	Fort Wayne, Indiana	Draughtsman.
	F. Z. Smith	A. B	"	Attorney-at-law.
	Alice M. Townshend	A. B	Bement, Illinois	Mrs. Chas. M. Wing—stock farm.
	John C. Ward	A. B	Painesville, Ohio	Clerk of Court.
	S. H. Short	B. S	Denver, Colorado	Electrical Engineer, formerly Prof. Physics and V. P., University of Denver.
1881	Harwood R. Pool	B. Ph	New York, N. Y	Attorney-at-law.
	W. K. Cherryholmes	B. S	Millersburgh, Ohio	Physician.
	K. D. Wood	A. B	Columbus, Ohio	Book-keeper.
	Josephine M. Bates	B. Ph	"	Mrs. Florizell Smith.
	David O'Brine	B.S.,E.M.M.D	"	Assistant in Chemistry, O. S. U.
	C. M. Lewis	A. B	"	Reporter "Columbus Evening Dispatch."

OHIO STATE UNIVERSITY ALUMNI—NOVEMBER, 1885.

Class.	Name.	Degree.	Residence.	Occupation.
1882	W. W. Donham	B. S	Forgy, Ohio	Superintendent township schools.
	O. L. Fassig	B. S	New Haven, Ct	U. S. Signal Service at Yale College.
	F. W. Fay	A. B	Buffalo, New York	Architect.
	Sioux Glover	B. S	Pennsylvania—Wells Tannery	Mrs. Horton.
	Frederic Keffer	E. M	Columbus, Ohio	Electrical Engineer.
	Irvin Linson	A. B.	London, Ohio	Teacher district school.
	John A. McDowell	B. S.	Columbus, Ohio	Electrical Engineer.
	Cora Warner	B. Ph	"	Resident.
	H. L. Wi gus	B. S	Troy, Ohio	Attorney-at-law.
1883	Fremont Ackerman	C. E	Glen Haven, Wisconsin	R. R. engineer corps.
	J. N. Bradford	Mech. Eng	Columbus, Ohio	Teacher of Drawing, O. S. U.
	J. J. Dun	M. E	"	Civil and Mining Engineer.
	J. H. Galbraith	B. Ph	"	Managing Editor of "Columbus Daily Times."
	C. E. Higbee	B. Sc	"	Grocer—"Carmack & Higbee."
	A. B. Howard	B. Ph	Deer Lodge City, Montana Terr.	Clergyman.
	G. W. Knopp	B. Sc	Pittsburgh, Pa	Bridge Builder.
	C. F. Marvin	Mech. Eng	Washington, D. C	Ass't Prof. U. S. Signal Service.
	C. C. Miller	A. B	Eaton, Ohio	Superintendent public schools.
	F. W. Sperr	M. E	Jefferson, Ohio	Mining Engineer.
	E. M. Van Harlingen	B. Sc	Galveston, Texas	U. S. Signal Service.
1884	Eli O. Ackerman	C. E	Van Wert, Ohio	Deputy County Surveyor.
	J. T. Anderson	A. B	Fort Concho, Texas	Lieutenant U. S. army.
	Helena W. Chamberlain	A. B	New York, N. Y.	Resident.
	George W. Dun	B. Sc	Columbus, Ohio	Clerk county treasurer's office.
	J. R. Lovejoy	B. Sc	Lynn, Massachusetts	Thompson-Houston Electric Light Co.
	C. V. Mead	B. Ph	Jefferson, Ohio	Law student—Clerk Probate Judge's office.
	Edward Orton, Jr	E. M	Columbus, Ohio	Chemist Columbus Steel Works.
	Annie W. Sabine	A. B	New Haven, Ct	Special student, Yale College.
	E. E. Sparks	A. B	Portsmouth, Ohio	Teacher—high school.

Ohio State University Alumni—November, 1885—Continued.

Class.	Name.	Degree.	Residence.	Occupation.
1884	J. B. Wikoff	B. Ph.	Columbus, Ohio	Law Student.
	Geo. L. Morton	Mech. Eng.	Washington, D. C	Examiner in U. S. Patent Office.
	C. W. DeLamater	A. B	Cincinnati, Ohio	Senior year, Cincinnati Law School.
1885	W. P. Bentley	B. S.	Somerset, Kentucky	Fruit Grower.
	C. C. Greene	B. S.	Middleport, Ohio	Medical student.
	W. H. Harrison	C. E.	Columbus, Ohio	Draughtsman Union Pacific R'y Company.
	Ellis Lovejoy	E. M	Union Furnace, Ohio	Superintendent brick works.
	C. A. Marple	B. S.	"	Clerk.
	W. R. Malone	A. B	Cambridge, Ohio	Principal of high school.
	M. N. Mix	B. Ph.	Mansfield, Ohio	Reporter Mansfield Times.
	W. L. Peters	M. E	Columbus, Ohio	Columbus Buggy-Co.
	C. V. Pleukharp	M. E	"	Castor manufacturer.
	W. J. Root	E. M	"	Analytical Chemist at O. S. U.
	E. L. T. Schaub	M. E	"	Machinist—Piqua shops.
	C. F. Scott	A. B	"	Student John's Hopkins.
	Mary O. Scott	A. B	"	Teacher Columbus High school.
	F. A. Taylor	A. B	London, Ohio	Editor of "The Vigilant."
	Geo. R. Twiss	M. E	Youngstown, Ohio	Teacher.
	Philo C. Smith	B. S.	Middlebranch, Ohio	Farmer.
1886	Connell, William Adams	E. M	Portsmouth, Ohio	
	Converse, Edward Jasper	B. A	Columbus, "	
	Cunningham, George Strode	B. Ph	Lancaster, "	
	Devol, William Stow	B. Ag	Marietta, "	
	Erskine, James H	E. M	Lowellsville, "	
	Fisher, Clara	B. A	Columbus, "	
	Hill, Frank Edwin	B. Sc	Neville, "	
	Jones, Alfred Andrew	C. E.	Columbus, "	
	Keifer, William White	B. A	Springfield, "	
	Masters, George Albert	C. E	Toledo, "	

OHIO STATE UNIVERSITY ALUMNI—NOVEMBER, 1885—Continued.

Class.	Name.	Degree.	Residence.	Occupation.
1886	Milligan, James Porter	B. A	Rushville, Ohio	
	Sabine, Wallace Clement	B. A	Columbus, “	
	Schroll, Otto	C. E	“ “	
	Scott, Anna Neill	B. A	“ “	
	Smith, Horace Porter	B. Sc	Adams Mills, Ohio	
	Vandervoort, William P	E. M	Morrow, Ohio	
	Viets, Willis Burton	E. M	Amboy, “	
	Watt, Sern Perley	M. E	Jamestown, Nebraska	

SEVENTEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

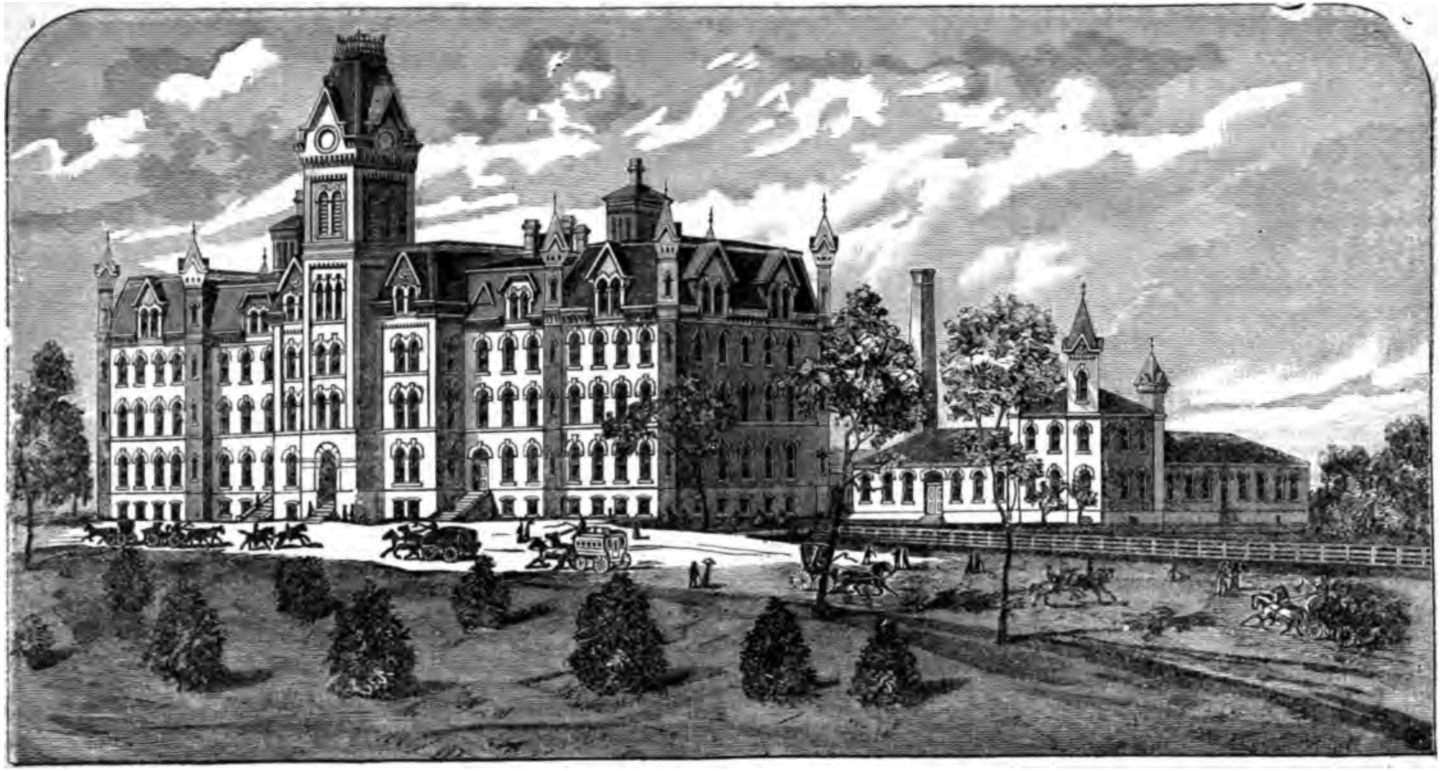
OHIO STATE UNIVERSITY,

TO THE

GOVERNOR OF THE STATE OF OHIO,

FOR THE YEAR 1887

COLUMBUS:
THE WESTBOTE COMPANY, STATE PRINTERS.
1888.



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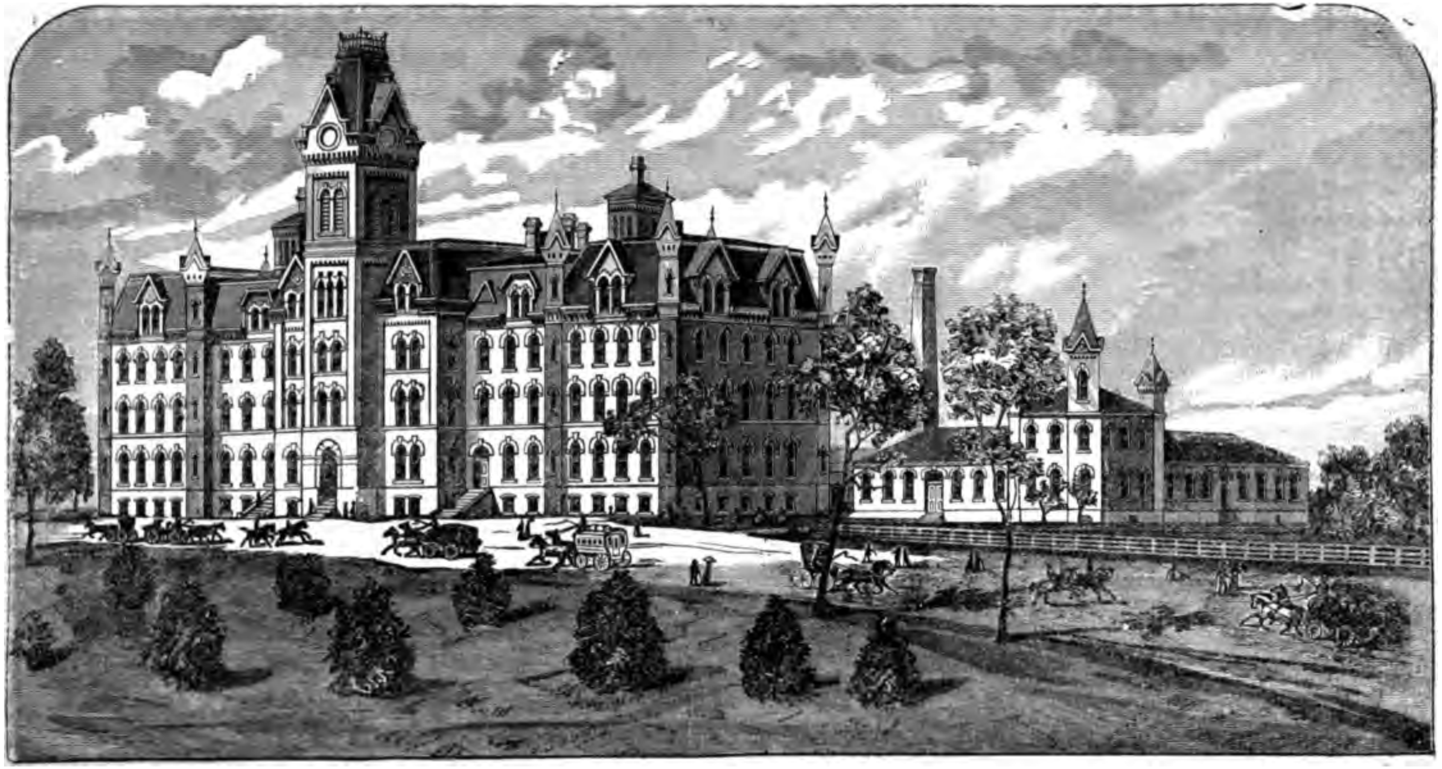

OHIO STATE UNIVERSITY.

BOARD OF TRUSTEES.

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RUTHERFORD B. HAYES	**Fremont.**

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THOMAS A. COWGILL	*Vice-President.*
ALEXIS COPE	*Secretary.*
FRED. W. PRENTISS	*Treasurer.*

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OHIO STATE UNIVERSITY.

1887–1888.

FACULTY.

WILLIAM H. SCOTT, A. M., LL. D.,
President and Professor of Philosophy.—University Grounds.

EDWARD ORTON, Ph. D., LL. D.,
Professor of Geology.—101 Twentieth Street.

SIDNEY A. NORTON, Ph. D., LL. D.,
Professor of General and Applied Chemistry.—Corner Town and Seventh Streets.

NORTON S. TOWNSHEND, M. D.,
Professor of Agriculture and Veterinary Science.—University Grounds.

ALBERT H. TUTTLE, M. Sc.,
Professor of Zoology and Comparative Anatomy.—University Grounds.

STILLMAN W. ROBINSON, C. E.,
Professor of Mechanical Engineering.—1205 North High Street.

NATHANIEL W. LORD, E. M.,
Professor of Mining and Metallurgy.—Room 16, Hayden Block, E. Broad Street.

SAMUEL C. DERBY, A. M.,
Librarian, and Professor of the Latin Language.—Indianola Place.

WILLIAM R. LAZENBY, Ag. B.,
Professor of Horticulture and Botany.—University Grounds.

JOSIAH R. SMITH, A. M.,
Secretary, and Professor of the Greek Language.—Indianola Place.

HENRY A. WEBER, Ph. D.,
Professor of Agricultural Chemistry.—University Grounds.

BENJAMIN F. THOMAS, Ph. D.,
Professor of Physics.—University Grounds.

GEORGE W. KNIGHT, A. M., Ph. D.,
Professor of History and Political Science.—University Grounds.

R. D. BOHANNAN, B. Sc., C. E., E. M.,
Professor of Mathematics and Astronomy.

CHAS. E. KILBOURNE,
First Lieutenant 2d Artillery, U. S. A., Professor of Military Science and Tactics, and Assistant Professor of Mathematics.—E. Town Street.

H. J. DETMERS, V. S.,
Professor of Veterinary Surgery.

C. NEWTON BROWN,
Associate Professor of Civil Engineering.

ALICE K. WILLIAMS,
Associate Professor of the French Language.—Woodruff Avenue.

ERNST A. EGGERS,
Associate Professor of the German Language.

ALFRED H. WELCH, A. M.,
Associate Professor of the English Language and Literature.

COLUMBUS, OHIO, *November* 15, 1887.

To His Excellency, GOVERNOR JOSEPH B. FORAKER:

SIR: I have the honor to transmit herewith the seventeenth annual report of the board of trustees of the Ohio State University.

Very respectfully,
Your obedient servant,
ALEXIS COPE,
Secretary of Board.

REPORT OF TRUSTEES.

OFFICE OF THE BOARD OF TRUSTEES OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, *November* 15, 1887.

Hon. JOSEPH B. FORAKER, *Governor of Ohio:*

SIR: In compliance with law the board of trustees respectfully submit the seventeenth annual report of the Ohio State University.

The accompanying report of the president is for the year ending November 15, 1887; the reports of the other members of the faculty are for the university year ending in June, 1887. The report of the treasurer shows in detail the receipts and disbursements of the funds of the university, exclusive of appropriations made by the general assembly. The detailed statement of the disbursements of said appropriations will appear in the report of the auditor of state.

The part of the irreducible debt of the state which forms the permanent endowment of the university remains the same as shown by the last annual report, to-wit: $587,841.46, upon which the annual interest is $32,270.48.

The receipts from various sources, exclusive of state appropriations, and including the balance in the hands of the treasurer, November 15, 1886, have been as follows:

Balance in hands of treasurer November 15, 1886	$11,336 73
Interest on endowment	32,270 48
Term laboratory fees of students	5,864 90
Sale of Virginia military lands	3,041 42
Rents of residences	1,950 00
Supplies sold to students	141 27
Sale of old iron	32 01
Total receipts	$54,636 81

The disbursements of said funds have been as follows:

Salaries	$34,251 63
Ordinary repairs	2,963 00
Fuel and care of buildings	1,083 49
Department supplies	3,442 18
Printing and advertising	1,470 08
Water rents	428 99
Attendance farmers' institutes	215 58
Furniture	$ 194 45
Expenses Virginia military lands	338 70
Repairs Virginia military lands, residences	340 13
Improvement of farm	652 11
Miscellaneous	1,816 85
Total disbursements	$47,197 19
Balance in hands of treasurer November 15, 1887	7,439 62

In said accounts are included the funds received from the sale of the Virginia military lands, which have not been used in building and maintaining residences for the professors, in accordance with the act of April 17, 1882. The balance of said funds in the hands of the—

Treasurer November 15, 1886, was	$6,888 14	
Receipts during the year	3,041 42	
Total		$9,929 56
Expenses incident to sale	338 70	
Repairs, residences of professors	340 13	
Total		678 83
Balance, November 15, 1887		$9,250 73

Since the repeal of section six of the act of April 3, 1873, such balances have been carried into the account of the current funds of the university.

The face value of the outstanding collectible notes received from the sale of said lands is $3,032.34.

To show fully the actual receipts and disbursements of the university for the last fiscal year, there must be added to the amounts mentioned in the report of the treasurer, the sums received from appropriations made by the general assembly, and paid on warrants of the auditor of state. Below is given a tabulated statement showing the balances of the several state appropriations November 15, 1886, the amounts appropriated during the year, the total amounts subject to draft, the disbursements during the year, and the balances to the credit of said state appropriations November 15, 1887:

Name of appropriation.	Balances Nov. 15, 1886.	Appropriated during the fiscal year 1887.	Total amounts subject to draft during fiscal year.	Expended during year ending Nov. 15, 1887.	Balances Nov. 15, 1887.
Ordinary repairs	$223 50	$2,500	$2,723 50	$2,682 00	$41 50
Expenses of trustees	266 53	500	766 53	386 80	379 73
Fuel and care of buildings	828 33	2,000	2,828 33	2,253 54	574 79
Improvement of campus	392 45	800	1,192 45	780 00	412 45
Laboratories	186 56	....	186 56	181 05	5 51
Repairs, gas-works	....	2,000	2,000 00	1,919 00	81 00
Green house	450 00	600	1,050 00	600 00	450 00
Library	1,557 86	1,000	2,557 86	2,054 18	503 68
Veterinary museum, etc	1,899 96	....	1,899 96	1,884 95	15 01
Equipment horticultural department	45 97	....	45 97	44 00	1 97
Equipment laboratory agricultural chemist	07	....	07	....	07
Addition to mechanical department	2 92	....	2 92	....	2 92
Salaries of teachers	84	10,000	10,000 84	9,998 33	2 51
Totals	$5,854 99	$19,400	$25,254 99	$22,783 85	$2,471 14

The following table shows the disbursements from the current funds added to those made from state appropriations:

Purpose for which disbursed.	Paid out of state appropriations.	Paid out of current funds.	Total.
Ordinary repairs	$2,682 00	$2,963 00	$5,645 00
Expenses of trustees	386 80	....	386 80
Fuel and care of buildings	2,253 54	1,083 49	3,337 03
Improvement of campus	780 00	....	780 00
Laboratories	181 05	....	181 05
Repairs of gas-works	1,919 00	....	1,919 00
Green house	600 00	....	600 00
Library	2,054 18	....	2,054 18
Veterinary museum	1,884 95	....	1,884 95
Equipment horticultural department	44 00	....	44 00
Salaries of teachers, etc	9,998 33	34,251 63	44,249 96
Printing and advertising	....	1,470 08	1,470 08
Water rents	....	428 99	428 99
Attendance farmers' institutes	....	215 58	215 58
Furniture	....	194 45	194 45
Expenses Virginia military lands	....	338 70	338 70
Repairs Virginia military lands, residences	....	340 13	340 13
Department supplies	....	3,442 18	3,442 18
Improvement of farm	....	652 11	652 11
Miscellaneous	....	1,816 85	1,816 85
Totals	$22,783 85	$47,197 19	$69,981 04

From the foregoing it appears that the total receipts of the university for the fiscal year, including balances on hand November 15, 1886, have been as follows:

Current funds	$54,636 81	
State appropriations	25,254 99	
Total receipts		$79,891 80
Disbursements:		
Current fund	$47,197 19	
State appropriations	22,783 85	
Total disbursements		$69,981 04
Leaving a balance November 15, 1887		$9,910 76

of which $2,471.14 is in the state treasury to the credit of the several state appropriations, and $7,439.62 is in the hands of the treasurer of the university.

It will also be seen from the foregoing statement that the expenditures for ordinary repairs was $2,963 in excess of the appropriations made by the general assembly for that purpose.

$2,735 of such excess was caused by an extraordinary outlay in repairing the falling tower of the main university building during the year 1886, and which was reported as a deficiency in the last annual report. The general assembly having failed to appropriate the necessary funds to meet this deficiency, the cost of such repairs was paid out of the current funds of the university. The trustees hope that the general assembly will make the necessary appropriation to refund to the university the amount so expended. The act of congress making the grant upon which the university was founded provides that "no portion of the fund" derived therefrom, "nor the interest thereon, shall be applied directly, or indirectly, under any pretext whatever, to the purchase, erection, preservation, or repair of any building, or buildings," and the general assembly, in the act of February 9, 1864, accepting such grant, pledged the faith of the state to the performance of all the conditions and provisions of said grant. There is therefore an express obligation on the part of the general assembly to make all necessary appropriations for the preservation and repairs of the buildings of the university.

The appropriations for ordinary repairs for the year 1887 have been expended in repairing the water-closets, and the steam heating in the west wing of the main building, in replacing the plastering where it had fallen off, and in making those repairs of roofs, chimneys, conductors, etc., which most needed attention. A much larger sum could have been used to advantage.

The entire steam-heating, including the boilers, tanks, cisterns, etc., need thorough repairs, and roofs, conductors, cornices, window casings, and other wood-work need repainting to preserve them from decay. The trustees hope that liberal appropriations will be made for this purpose in order that the buildings may be put in good condition in anticipation of the crowds which will probably visit the institution during the coming centennial.

Of the appropriation of $2,000 for repairing the gas-works, $1,919 has been expended in erecting two new benches of two retorts each, with the necessary appliances, including condenser, scrubber, and an additional purifier, with by-pass valves for purifiers and station meter. A station meter has been ordered at a cost of $125, which will exhaust the appropriation. The necessity for lighting the university grounds and drives, and the approaches to the several buildings, was set forth in the last annual report. This necessity is increased in view of the great crowds that will probably be drawn to the vicinity during the coming year. The works are now ample to supply all the lamp posts needed to thoroughly light the grounds, and also to supply the residences of the various professors, and the trustees will ask the legislature for a small appropriation for laying the mains, and providing the posts and fixtures.

The appropriation for the library has been expended in the purchase of books and periodicals, and in binding periodicals and shelf-worn volumes. The report of the librarian shows that the number of volumes in the library, exclusive of some 2,000 pamphlets, was on the 22d day of June, 1887, 7,708, of which number 864 had been added during the year. The number at the date of this report is about 8,000.

Great care has been exercised in the selection of the books, and the collection, so far as it goes, is admirably adapted to the needs of the institution. It is still, however, very inadequate to meet the growing wants of a university. Many of the departments are in need of books on special subjects, which cannot be obtained without more liberal appropriations.

In this connection, attention is called to the report of Prof. Norton, where he again recommends the purchase of Liebig's Annalen, to the report of Prof. Eggers, wherein he states the necessity for books of reference for the higher work in German, and to the importance of larger additions to the works on history and political science so strongly presented by Prof. Knight in the report of his department. The general needs of the library are set forth in the report of Prof. Derby, the librarian, to whom great credit is due for the intelligent care which he has exercised in its behalf, and the trustees cordially indorse his recommendation and that of President Scott, in favor of larger annual appropriations for its support.

The state appropriation for the campus has been used to care for and improve its general features. A rustic bridge has been built across the stream flowing through it, the walks and drives have been re-graveled, and a house for preserving and propagating plants for its adornment has been erected. Attention is invited to the report of Professor Lazenby, superintendent of the grounds, and to the recommendations therein contained.

A brick walk between the main buildings and the horticultural hall should be constructed at the earliest practicable day, and a fountain at the lake, to be supplied by the water-tank in the main building, would add much to the attractiveness of the grounds.

In this connection attention is again called to the project of a botanical garden and arboretum at the university, which has long claimed a share of public attention, and has been strongly advocated by the state horticultural society The benefits to flow from its establishment are presented in former annual reports, and are again set forth in the reports of President Scott and Professor Lazenby. The grounds of the university are well adapted to this purpose, and the trustees again renew the recommendation for an appropriation of $5,000 to be expended therefor.

In August, 1882, Mr. Samuel Kendrick, of Chillicothe, was authorized by the board of trustees "to discover, survey, plat, cause to be appraised, and sell undiscovered lands in the Virginia military district belonging to the Ohio State University, and known as Virginia military lands. The sales and the conduct of all litigations and negotiations concerning the same to be reported to the executive committee of the board of trustees, and by said committee approved before the same should be binding upon either party."

After said approval, all expenses of surveying, appraising, or litigating, and other necessary expenses incurred, save and except the time given by said Kendrick, were to be paid out of the fund received from said lands, and of the residue remaining said Kendrick was to pay over to the treasurer of the university 66⅔ per cent. The said Kendrick was authorized to compromise and settle any case or cases with the approval of said executive committee, such authority to terminate November 10, 1883.

The said Kendrick was to be entitled to 33⅓ per cent. of the net proceeds of all cases reported by him, and approved by said committee and not finally settled at the date fixed for the termination of such authority. On February 23, 1887, Mr. Kendrick was authorized by the board "to pursue to determination all cases of lands by him discovered and heretofore by him reported to the board on the terms of his former contract," with the understanding that such authority should terminate at any time on sixty days' notice by the board of trustees.

Up to this date Mr. Kendrick has reported 142 discoveries, embracing in the aggregate over 25,000 acres. Some of these lands have been sold at the appraisement, and in some cases compromises have been made. The amount of such land disposed of during the last fiscal year was 3,945½ acres, the net proceeds therefrom being $2,477.85. The recovery of said lands will probably be attended with expensive litigation, and it is not likely that the additions to the revenues of the university from this source will be large. Few suits for the recovery of said lands have been authorized, and the board prefers to convey said lands to the occupants for a small consideration by way of compromise.

The number of professors employed by the university is 16; assistant professors, 5; assistants, 4. Their positions and compensation is shown elsewhere in this report.

At the close of the last university year, George C. Comstock, professor of mathematics and astronomy, resigned to accept the position of professor of astronomy and associate director of Washburne Observatory, at the university of Wisconsin. During the two years Professor Comstock was connected with the institution he exhibited marked excellence as a teacher, and won the confidence and respects of his associates. His loss was deeply regretted. The fact that he left the institution to connect himself with a similar one in a less favored state, because of its superior equipment in his chosen specialty, is a significant one, and worthy of thoughtful consideration.

Professor R. D. Bohannan, a graduate of the university of Virginia, has been elected to the chair made vacant by Prof. Comstock's resignation, and entered upon his duties at the beginning of the present term. He comes to us very highly recommended by the faculty of his alma mater, and by the professors of the universities of Cambridge, England, and Gottingen, Germany, where he pursued post graduate studies.

The detail of Lieut. A. P. Blocksom, as professor of military science and tactics, expired July 1, 1887, and he was succeeded by Lieut. Chas. E. Kilbourne, 3d Artillery, U. S. A.

Lieut. Blocksom, during the three years in which he was connected with the university, was very successful as a military instructor, and brought the military department to a high state of efficiency. His successor, Lieut. Kilbourne, brings to his new duties large experience and fine talents, and we are confident that the efficiency of the department under his direction will be maintained.

Mr. Benjamin W. Snow, assistant in the department of physics, also resigned at the close of university year to pursue a course of study in Europe, and later Dr. David O'Brine, who for ten years had served as assistant in the department of general and applied chemistry, tendered his resignation to accept the position of professor of agricultural chemistry in the university of Colorado. Cheerful testimony is borne to the fidelity and zeal with which both these young men discharged the duties imposed on them while connected with the university.

Frederic Keffer, a graduate of the Ohio State University of the class of 1882, has been chosen to succeed Dr. David O'Brine, and Joseph F. Whitney, a student of the Massachusetts Institute of Technology, to succeed Mr. Snow, both entering upon duty at the beginning of the present term.

The department of history and English language and literature, which has been under the very able direction of Professor Knight, assisted by Mr. A. H. Welsh, has been divided, Professor Knight being placed in charge of the chair of history and political science, and Mr. Welsh in charge of the department of English language and literature as assistant professor. The foregoing are all the changes in the faculty during the last fiscal year.

The number of students in attendance during the last academic year was as follows:

Full term, 324; winter term, 283; spring term, 253. The number in attendance at the present time is 335. The numbers in the several departments and classes, and the course of instruction pursued in each, are shown in the reports of the president and faculty, and in the catalogue which is made a part of this report.

At the commencement in June, 1887, on the recommendation of the faculty, the following degrees *in cursu* were conferred upon the parties named below:

William Filson Charters, New Lisbon,	Degree of B. Ph.
Howard Pendleton Converse, Columbus,	" B. Sc.
Harry Corns, London,	" B. A.
Fredericka Detmers, Columbus,	" B. Sc.
Vernon Judson Emery, Napoleon,	" B. A.
William Hamilton Hannum, Lancaster,	" B. A.
Robert Hazlett, Jr., Wheeling, W. Va.,	" C. E.
Wilby Grimes Hyde, New Holland,	" B. A.
William Franklin Hunt, Miamisburg,	" M. E.
William McPherson, Jr., Xenia,	" B. Sc.
Annie Mullay, Columbus,	" B. Ph.

Joseph Simmons Myers, Columbus,	Degree of	B. A.
Uriah Henry Myers, Columbus,	"	E. M.
Halbert Edwin Payne, Fostoria,	"	M. E.
Frank Arnold Ray, Jefferson,	"	E. M.
Archibald Crawford Reeves, Dayton,	"	C. E.
Daisy Medill Scott, Columbus,	"	B. A.
May Mermod Scott, Columbus,	"	B. A.
Joseph Russell Taylor, Marietta,	"	B. A.
Henry Julian Woodworth, Jefferson,	"	B. Sc.
Oscar Clemens Zaumseil, Ripley,	"	C. E.
Mark Francis, Paddy's Run,	"	D. V. M.
Arthur Theodore Heath, Cuyahoga Falls,	"	Ph. G.
Charles Henry Krieger, Columbus,	"	Ph. G.
George Frederic Weidner, Cuyahoga Falls,	"	Ph. G.

The degree of Doctor of Philosophy was conferred by the board of trustees upon Burke A. Hinsdale, of Cleveland; James J. Burns, of Dayton; and Alston Ellis, of Hamilton; and the degree of Doctor of Veterinary Medicine upon Dr. N. S. Townshend, professor of agriculture at the university.

The university farm, under the efficient supervision of Mr. W. S. Devol, a graduate in the agricultural course of the university, is in excellent condition. His report as superintendent of the farm, filed herewith, shows the receipts for the year ending November 1, 1887, to have been $4,824.49; expenditures, $5,483.48, leaving a deficiency of $659.99, which, however, is more than covered by bills and accounts receivable.

The report also shows in detail the farm operations during the year, an account of the field experiments, the improvements made, the number and value of stock and farm implements, and the amount and value of grain, feed and other products, raised, consumed and sold. The board of trustees in February appropriated $800, to be expended under Mr. Devol's direction in repairing fences, cleaning an island in the river and walling up the manure-pit at the farm barn. Six hundred and fifty-two dollars of said amount has been expended, and the result is a marked improvement in the appearance of the farm. Mr. Devol, while superintending the farm for the university, has also had charge of the field experiments of the experiment station, the results of which have been published in the bulletins and reports of said station. The farm operations and experiments have been utilized as far as practicable in illustrating the work of the numerous classes in agriculture and allied branches, and at the same time have afforded many students an opportunity to earn a portion of their expenses while attending the university.

The trustees hope that in any arrangement, made with the experiment station, such opportunities may be increased rather than diminished.

That part of the farm devoted to experiments in horticulture and vegetable gardening has been under the direction of W. J. Green, as superintendent of the gardens, whose report is also filed herewith. Said report shows receipts to have been $840.34; expenses, $840.08, leaving a balance of 26 cents.

The prevailing dry weather proved disastrous to the operations in this department of the farm. The report shows in detail the operations, including an account of the experiments conducted during the year. Mr. Green performed a similar office for the experiment station, and his reports were also published in the bulletins and reports of the station.

At the June meeting of the board of trustees Dr. Townshend suggested the propriety of offering a limited number of free scholarships in the short agricultural course. The board looked with favor upon the project, and appointed President Scott and Dr. Townshend a committee to carry it into effect. The committee, with the approval of the trustees, decided to offer one such scholarship to each county in the state, the student in each case to be chosen and recommended by the county agricultural society. It is to be regretted that the offer was made so late in the season and was so little understood. A few counties took advantage of the opportunity offered. The proposition, however, was left open for next year, when it is to be hoped more students will avail themselves of the privilege.

The increased attendance and interest in what may be called the agricultural departments of the university is one of the marked features of the year's progress. The classes in agriculture, in botany and horticulture, in agricultural chemistry, are larger than ever before, indicating a growing appreciation of the opportunities offered by the university to those who wish toengage in agricultural pursuits. In this connection special attention is invited to the reports of Dr. Townshend, Professors Lazenby and Weber, and Dr. Detmers, and to the suggestions and recommendations made by them for the development of their respective departments, all of which have the cordial approval of the board of trustees.

Prof. Orton again renews his request for a separate fire-proof building for the geological museum. In the annual report of his department for the year 1885, he presented the argument in favor of such a structure so cogently that it is here reproduced. He said:

"The truth is that the museum needs a building for itself, and I trust that the time has now come when we may set about the work of providing suitable quarters for it, with good promise of success. We must distinctly recognize the fact that suitable provision will require considerable outlay. It is easy to lay down a number of points that should be observed in the construction of a museum building. (1) It should be built of Ohio stone. (2) It should be fire-proof. (3) It should furnish one example on the college grounds of a building properly constructed, heated and ventilated. (4) It should be large enough to provide for the natural growth and expansion of such a collection as it would contain.

"In regard to the first point, it is only necessary to say that our own state furnishes the largest amount, and, in many respects, the finest quality of building stone of any state in the union. Our museum should be made a proper representative of this great interest. Several of the leading varieties should find place in its construction. I have but little doubt that the public spirit and business sagacity of our quarrymen would make it possible for us to obtain the best building stone of the state on unusually favorable terms. Competition might well arise among the great centers of production as to finding places in such a building, inasmuch as it would form a most conspicuous and permanent advertisement of the materials used in it.

"It needs no argument to show that a building designed for such use should be fire-proof, but in addition to the obvious reasons for this requirement, I may add that if a proper place were furnished by the university, adapted both to the proper display and permanent preservation of the materials entrusted to the valuable collections of fossils and minerals would be sure to come to us. There is one cabinet of fossils in the state, to-day, on which many thousands of dollars and many years of enthusiastic labor have been spent, and which would be an ornament to any museum in the world. That I believe we could confidently count upon, if we could offer a safe and suitable repository for it."

The trustees have repeatedly recorded themselves as earnestly favoring an appropriation for such a building. It is needed to insure the safe preservation of the valuable collection which is constantly in danger of destruction by fire, and also as a temporary depository for the library until suitable provision can be made for it.

It is one of the first and most pressing needs of the institution, and we hope that the request for the necessary appropriations will not be disregarded.

The department of zoology and comparative anatomy, under the able direction of Professor Tuttle, is struggling with inadequate equipment to keep abreast of the other leading departments of the university. The importance of the study of practical anatomy and physiology cannot be overestimated. They are now required studies in all the agricultural and engineering courses, and elective in the arts and philosophy courses. Notwithstanding this fact, few important additions to its equipment have been made since a time when the number of students was less than one half of what it is now. To properly equip this department and supply the many duplicates required for the proper convenience of students, will require a larger outlay than the current funds of the university can supply, and therefore for a number of years the board of trustees have asked the legislature to appropriate the amount necessary for such equipment.

The sum of $5,000 is needed for this purpose.

The department of mining and metallurgy, under the efficient direction of Professor Lord, and which has turned out some of the brightest graduates of the institution, has been recently inspected by a committee of the Ohio institute of mining engineers, with a view to ascertaining its needs and what means should be adopted to assist the university in supplying them. Such committee has suggested that the department needs, and should have, in order to fully answer the purposes of its creation, as defined in the act of May 7, 1877 [O. L., 74 V., p. 216];

"1. A collection of drawings illustrating Ohio mining practice—such as the manner of draining mines, raising coal, laying out the underground workings, the various methods of ventilating mines, etc.

"2. A collection of mining engineering instruments, safety-lamps, etc.

"3. Models of systems of timbering in drift and shaft mines, in sinking for coal, and carrying forward the underground excavations.

"4. Models illustrating underground haulings by mine locomotives, by tail rope and by horse-power.

"5. Such assistance to Professor Lord in the way of instructors as will cover the needs of the department."

The suggestions and recommendations of said committee, representing, as it does, the industry second in importance in the state, deserves and should receive due consideration.

The trustees, however, are convinced that any material additions to the equipment of the department will be of little value, unless supplemented by some permanent provision sufficient to employ additional instructors in class-room and laboratory. Such provision should be made as soon as practicable, so that this important branch of industrial education can be expanded to meet the present and growing demands.

Special attention is directed to the report of Professor Thomas, wherein he presents the condition and needs of the physical department.

The necessity for special equipment in order to give a thorough course in electrical engineering is urgent. The marvelous growth of electricity as an applied science, and its increasing use for lighting and motive power, furnish a strong argument in favor of a course of training in the methods of its application.

Such a course is scarcely less important than those in civil, mechanical and mining engineering, and should be provided at the earliest practicable moment.

Attention is also invited to the report of Professor Robinson in charge of the department of mechanical engineering. The report of Professor Brown, of the department of civil engineering, and the report of Mr. Bradford, instructor in drawing. All indicate a growing interest in these important branches, and call attention to needed additional equipment, which the trustees hope can soon be supplied.

The department of general and applied chemistry, under the supervision of Professor Norton, is well equipped and admirably sustained; his interesting report shows the gift of valuable cabinets and collections illustrating industrial chemistry, for which due acknowledgment is made. His reqnest for a copy of Liebig's Chemical Annals is mentioned with approval elsewhere in this report.

Special attention is invited to the report of Prof. Knight in charge of the department of history and English language and literature, and to the pride expressed at the successful introduction of the course designed for original study and research in the institutional and financial history of the United States, thought to be the first trial of this method on Ohio soil. The division of this important department elsewhere mentioned in this report will, it is believed, greatly increase the efficiency of both its branches, Mr. Welch, who has a wide reputation as an author, will hardly fail to make the department of English language and literature highly attractive. The department of mathematics and astronomy in charge of Prof. Comstock, assisted by Lieut. Blocksom and Mr. McCord, was ably conducted and unusually efficient. Under Prof. R. D. Bohannan, who has had charge during the present term, its efficiency is well sustained. In the last annual report attention was called to the necessity for some provision for the school of pharmacy. It was then suggested that any money expended for fitting up a laboratory for its accommodation in any of the buildings in their present crowded condition would be largely thrown away, and that the wisest and most economical provision for it would be an addition to the building occupied by the chemical laboratories large enough to provide lecture-room, store-room and laboratory. It was suggested that such a building could be built and equipped for five or six thousand dollars. This department has now reached that point when such provision must be made or it must be abandoned.

The number of students in attendance, and the thoroughness of the instruction imparted make its continuance desirable. It was intended to supplement the legislation providing for a state board of pharmacy, and requiring examinations of all persons engaged in such business, and it is hoped that the general assembly will see the wisdom of granting the necessary appropriations for making it one of the permanent schools of the university.

The department of military science and tactics, under the direction of Lieutenant Blocksom, had a most prosperous year. The battalion of cadets under his command reached a high state of discipline and great proficiency in drill. A company of selected men, under the command of Captain W. S. Crawford, was permitted by the faculty to attend the celebration of the discovery of natural gas at Findlay, Ohio, in June, and compete for the prizes there offered. It brought home a prize of $500, which it obtained in competition with some of the best drilled military companies of the state. This triumph has awakened increased interest in military studies and exercises, and the battalion was never in better condition. It will be seen from the report of Lieut. Kilbourne that it numbers at the present time 234 men. A band has been organized, which promises to add to the attractiveness of the military exercises.

The board of trustees in the last annual report asked the legislature for an appropriation for an armory and gymnasium. The necessity for such a building is again presented in the report of President Scott, and is recommended by Lieut. Kilbourne. It is thought that such a building can be erected and equipped for the sum of $40,000, and so arranged that it could be used as an assembly hall for public occasions, such as university day and the annual commencement. The board renews its request for such appropriation.

Attention was called in the last annual report to the effort that had been successfully made to establish closer relations between the university and the Ohio agricultural experiment station, which since its creation has been located and has conducted its experiments on the university farm. By the arrangement thus made, and which still continues, the farm was set apart for experimental work, under the direction of officers and agents, whose appointment was mutually satisfactory to the board of control of the station and the trustees of the university. It was hoped from this arrangement, that the experiments might be more varied, conducted on a broader scale, and thus made more valuable to the public, while the departments of the university in which are taught the branches relating to agriculture would be benefitted by the increased facilities afforded for practical instruction in said branches. During the year congress passed what is known as the Hatch bill, providing for an annual appropriation to each state of $15,000, to be used in agricultural experiments and investigations. The bill, as originally drawn, was intended to supplement the land grant upon which the university was founded. As passed it provided that in states where there is an agricultural experiment station, separate from the land grant college, the legislatures of such states might place the fund, so granted, partly or wholly under the control of the agricultural experiment station. Soon after the passage of said act the general assembly of Ohio passed a resolution, placing said fund wholly under the control of the experiment station.

Under a mistaken impression that the act of congress made an immediate appropriation, the legislature failed to make the usual provision for the support of the station, and it awaits the action of congress before entering upon the more extended work which larger means will enable it to carry on. For this reason, we suppose, no change in the plans of said station have been reported to this board. When congress shall have made the necessary appropriations provided for by the Hatch bill the board of control of said station will doubtless desire to still farther vary and extend its investigations and experiments. All needed facilities therefor can be provided at the university, and it is to be hoped that the relations now existing between the station and the university can be maintained, or if modified, that it can be done with increasing benefits to the station and the university.

For a number of years the board of trustees have cheerfully co-operated with the state board of agriculture in its efforts to make the farmers' institutes interesting and instructive to the farmers of the state. The professors of the university have been encouraged to attend them and deliver lectures, and their expenses, while so engaged, have been paid by the university. During the past year President Scott and Professors Townshend, Orton, Tuttle, Lord and Weber, and Doctor Detmers have spent in such work such portions of their time as could be spared from their classes. Such expense has been incurred in the hope that it would bring the university into closer relations with the people of the state, and afford the professors so engaged an opportunity to present the advantages offered by it for thorough training in the branches relating to agriculture and the mechanical arts.

The department of French, under the direction of Miss Williams, and that of German, under Prof. Eggers, are well conducted. The work of these departments has heretofore been mainly directed toward teaching the student to read the French and German of scientific and technical works. It is to be hoped that in the near future the university may be enabled to provide and offer courses for a thorough study of these languages.

The department of Latin, under the very able direction of Prof. Derby is well managed, and his report shows gratifying progress. The department of Greek, under Prof. Smith, is equally well conducted. The recommendation of Prof. Derby for the establishment of a classical museum is worthy of consideration. As the classics are, by the terms of the land grant, not to be excluded from the curriculum, they should be as well taught as a proper application of the income of the university will permit.

The board of trustees will ask the general assembly for the following estimated appropriations for the ensuing year.

Expenses of trustees	$ 500
Salaries	10,000
Ordinary repairs	8,000
To refund amount paid for repairing tower	2,735
Fuel and care of buildings	3,500
Care of green house	1,000
Care and improvement of grounds	1,500
Library	5,000
Extension of gas mains, lamp posts, fixtures, etc	1,500
Equipment department of zoology and comparative anatomy	5,000
Centennial exhibit	1,000
Equipment for course in electrical engineering	6,500
Equipment, department of civil engineering	1,000
Military department	3,500
Building, department of pharmacy and equipment	8,000
Total	$53,235

The necessity for these appropriations is set forth in the foregoing pages of this report, and in the reports of the president and faculty, which are submitted and made a part hereof.

The year has been one of substantial progress in all departments of the university. The president and faculty have been faithful and zealous and the students orderly and industrious. The trustees have endeavored with the means at their disposal to provide for its proper growth and expansion.

It has already become a seat of learning whose reputation and influence extend far beyond the borders of our own state. In some respects its equipment is below what it should be. It needs and should have the more active and cordial support and encouragement of the people of the state, whose institution it is. A liberal and generous policy on the part of the general assembly, which is its proper guardian, would soon make it one of the model institutions of the country. It is indebted to the land grant for its endowment, and to the the generous gift of Franklin county for its land and principal building. In recent years the general assembly has made the following appropriations for buildings, equipment and current expenses: In 1882, $31,850; 1883, $21,850; 1884, $10,450; 1885, $25,500; 1886, $19,600; 1887, $19,400. The spirit manifested by the legislature has encouraged the friends of the university to hope that the bounty of the general government and the generosity of the people of Franklin county will soon be supplemented by ample appropriations sufficient to provide for all its growing wants. For a number of years the trustees have recommended and urged the setting apart of a fraction of a mill on the grand duplicate of the state for the support and maintenance of the university as has been done in other states, where the wisdom of such provision has been abundantly shown. Such recommendation is again renewed. The institution will not reach its highest usefulness until some such provision is made. The above suggestions and recommendations are respectfully submitted for the consideration of your excellency and the general assembly. Being yourself an alumnus and an honored trustee of a similar institution, familiar with the progress of knowledge and the growing needs of a great seat of learning, the friends of the university confidently hope that you will lend the weight of your great influence toward making it, what it should be, the crown of the educational system of the state.

Very respectfully,

ALEXIS COPE, *Secretary.*

THE ANNUAL REPORT OF THE PRESIDENT.

Hon. L. B. Wing, President of the Board of Trustees:

The president of the university has the honor to submit the following as his annual report for the year ending November 15, 1887.

The teaching force of the last collegiate year consisted of twenty-five members,—sixteen professors, one assistant professor, three instructors, one lecturer, and four assistants. At the end of the year two of the instructors and one of the assistants were given the rank of assistant professors.

The university suffered a serious loss in the resignation, at the last commencement, of professor of mathematics, George C. Comstock. Although when he came to us two years ago, he was almost without experience as a teacher, it was soon apparent that he possessed exceptional qualifications for the position. He was greatly esteemed, not only as an instructor, but as a member of the faculty, and his departure has been a cause of general regret. A quorum not being present on the first of September, at the meeting of the board of trustees, called to fill the vacancy created by Professor Comstock's resignation, and it being important that the question should be decided without further delay, the executive committee appointed R. D. Bohannan, who has been for several years assistant in mathematics and physics at the University of Virginia. Professor Bohannan is a graduate of the University from which he now comes, has studied mathematics both at Cambridge, England, and at Gottingen, Germany, and has had an extended and successful experience in teaching.

At the close of the year Benjamin W. Snow, assistant in physics, severed his connection with the university. Mr. Snow had been here but one year, yet he had proved himself a competent instructor and had won the confidence of both faculty and students. His place has been filled by the appointment of Joseph T. Whitney. Mr. Whitney received his education at the Massachusetts Institute of Technology.

During the vacation David O'Brine, who has for eight years been assistant in the department of general chemistry, accepted the chair of chemistry and geology in the university of Colorado. Dr. O'Brine's services have been assiduous and faithful, and were much appreciated by the head of the department in which he was employed. The duties of his former position are now performed by Frederic Keffer, of the class of 1882. Mr. Keffer has had not only the training in chemistry that is given in this department, but also that of the department of mining and metallurgy, and is quite equal to the demands of the present position.

I hereby recommend that the appointment of R. D. Bohannan, as professor of mathematics, that of Joseph T. Whitney, as assistant in physics, and that of Frederic Keffer, as assistent in chemisty, be confirmed by your honorable board.

With the year, the time for which Augustus P. Blocksom was detailed as instructor in military science and tactics in the university, expired. Lieutenant Blocksom was a capable and efficient officer, and took great interest in the training of the battalion. It was mainly through his vigor and zeal that the creditable successes of the last two years were won. His successor, Charles E. Kilbourne, First Lieutenant, Second Artillery, U. S. A., reported for duty on the sixth day of July, and has had charge of the military department during the current term with very gratifying results.

The number of students in attendance within the last collegiate year, was three hundred and thirty-seven, representing, ten states and the District of Columbia.

Resident graduates		1
Seniors	22	
Juniors	28	
Sophomores	33	
Freshmen	61	
Special	7	151
Briefer courses—		
Agriculture (two years' course)	24	
Veterinary medicine	4	
Pharmacy	13	41
Preparatory—		
Second year	52	
First year	74	
Irregular	18	144
Total in all classes		337

The distribution of the students in the four regular college classes by courses is shown in the following table:

	Totals.	B. A.	B. Ph.	B. Sc.	B. Ag.	C. E.	M. E.	E. M.
Seniors	22	8	2	4	...	3	2	3
Juniors	28	8	5	5	...	5	4	1
Sophomores	33	3	10	7	...	6	4	3
Freshmen	61	11	15	12	2	10	10	1
Totals	144	30	32	28	2	24	20	8

In the three general courses, that is, those leading to the degrees of bachelor of arts, bachelor of philosophy, and bachelor of science, there were ninety students; in the four-year technical courses, fifty-four; and in the briefer technical courses, forty-one; making a total in the technical courses of ninety-five.

The number of women in attendance within the year was forty-six.

Resident graduate		1
Seniors	4	
Juniors	1	
Sophomores	4	
Freshmen	16—	25
Preparatory—		
Second year	7	
First year	10	
Irregular	3—	20
Total		46

The whole number of candidates for admission as new students for the present year was one hundred and seventy-one.

At the examination in June	22		
On and after September 12	149—	171	
Not received	30		
Received	151		
Junior	1		
Sophomores	2		
Freshmen	28		
Special	3—	34	
Preparatory—			
Second year	19		
First year	65		
Irregular	10—	94	128
Agriculture	14		
Veterinary medicine	1		
Pharmacy	8—		23
Total			151

The freshmen received from other schools entered the various courses as follows:

B. A., 8; B. Ph., 10; B. Sc., 5; C. E., 5; M. E., 2; total, 30.

The whole number of students enrolled this term is 338.

There has been an encouraging increase in the school of agriculture. The department of agricultural chemistry, which opened three years ago with three students, now has twenty-one, and next term the laboratory will be filled almost to its capacity. The special interest and care that your board and the faculty have shown in the encouragement of agricultural and kindred studies is beginning to produce its legitimate fruit. I am assured by friends of agriculture who have visited the agricultural colleges of other states that the facilities afforded here are not excelled; and when this fact is once known among the farmers of Ohio we may expect that their sons will seek the University in increasing numbers.

The longer course in agriculture has been so arranged that it is continuous with the shorter course; so that the student who has completed the latter will have to remain but three years more in order to obtain the degree of bachelor of agriculture. It is hoped, therefore, that hereafter the students who enter for the short course alone will, in many cases at least, become candidates for the degree.

Some, however, can not remain; and as they are, nevertheless, entitled to some evidence that they have completed a prescribed course in the University, I would recommend that a certificate be prepared and engraved to be given to students in agriculture who may discontinue their studies at the end of the two years' course.

The number of women in the University last year was 13.7 per cent. of the whole number of students. All of them were in the preparatory and general courses, no courses adapted especially to women having ever been announced. The University simply opens its doors to such woman as desire and are able to do the work that is offered. Frequent inquiries are made concerning instruction in drawing, painting, and music; but, strange to say, I at least have not received a single inquiry concerning instruction in household economy; and, though criticism has not been spared on account of other real or imagined deficiencies, no criticism, so far as I know, has ever been made, because no course is offered by which the daughter of a mechanic or a farmer may become a trained and intelligent housekeeper. There is a science of the kitchen and the dairy which is quite as real and quite as material as that of the stable, the orchard, or the farm. The application of sanitary science is nowhere more important than in the dwelling house; but it is in vain that the most perfect appliances are furnished unless they are used with intelligence; and in the vast majority of cases the use of all appliances for the preparation of food, for heating, for ventilation, and for cleansing are under the almost exclusive direction of the mistress of the home.

We have not now the means to provide for instruction of this kind; but the lack of it presents an opportunity which a woman of wealth desiring to confer a boon upon her sex might covet. The liberal endowment here of a department of domestic economy would bring comfort and health and the light of a larger intelligence into many future homes.

The increase in the number of departments of instruction and the introduction of a more extended elective system has rendered it necessary, in the minds of the faculty, to retain many of the preparatory students for recitations in the afternoon. This supposed necessity arises from the fact that the laboratories require, on certain days, all of the afternoon hours of the students who work in them. Such students must therefore have their class-room work in the forenoon, and that they may do this some classes formerly reciting in the forenoon must be displaced. As preparatory students have no laboratory work, they can recite in the afternoon without interference, and hence several of their classes have been transferred to the latter part of the day.

Seen from this point of view the arrangement is desirable; but from another it is a source of evil. Formerly when all preparatory students recited continuously through the forenoon, attended chapel and drill, and then were dismissed for the day, they had no time at the buildings which could be spent in idleness. As it is now those who recite in the afternoon have at least two vacant hours, one made vacant by the transfer of a recitation from the forenoon, and the one allowed for lunch. During these hours most of those who desire to study seek the library, which is in consequence overcrowded. Others study as they may on stairways, in windows, or in any class-room that may be vacant for the hour. But any who are disposed to be idle and careless, are likely to make more or less disturbance.

If, in the judgment of the board of trustees, it is best that we should continue to maintain a preparatory department, it is desirable on every account that the pupils who attend it should be brought together in a separate building and placed under a closer government. It would then be possible to adopt such methods of instruction and management as are adapted to their age and degree of proficiency, while the collegiate department would be freed from an element which is in some respects a considerable detriment to it. A tuition fee of ten dollars a term charged to preparatory students, in addition to the incidental fee now charged, would provide for the additional appliances and teaching force made necessary by the proposed arrangement.

In my report two years ago I expressed the hope that a different method of selecting high schools from which to admit students to the freshman class would soon be adopted. The additional experience of these two years only strengthens my opinion that the present rule is inadequate. There are high schools in towns of five thousand or more inhabitants that entirely fail to prepare students for freshman work, while some towns of fewer inhabitants have high schools that do prepare, or with a little stimulus would prepare, their graduates very well. I trust that you will authorize the visitation of high schools by a committee of the faculty, who shall by personal observation of the teachers, appliances, courses of study, and actual work of the schools, ascertain which ones are qualified to fit students for the freshman year in the University.

The extension of the elective system has proved, in almost every respect, satisfactory. Students avail themselves freely of the opportunity it offers for choice, and genuine interest in study has been promoted. The year, however, has been, in a great degree, one of adjustment, and some studies which will hereafter be elective have been closed, because the students were still bound by obligations arising under the previous arrangement of the courses. In a few instances also classes in electives were not formed, because but two or three students desired them. In one case at least the results are not satisfactory. German, which is taken up at the beginning of the first preparatory year by students expecting to enter a course in science or engineering, has been introduced as an elective into the junior and senior years of the courses in arts and philosophy, As a result the youngest and most immature students in the University are thrown into the same classes with some of the most advanced and best trained. To adapt work to both of these grades is impossible. What is a trifling lesson for the junior or senior may be much beyond the capacity of the tyro. All the advantages of classification are lost. Yet it would seem unfortunate to deprive the students in arts and philosophy of the opportunity to study German. The proper solution of the difficulty would be the formation of two classes, one for beginners and the other for advanced students; but under present conditions this appears to be impracticable.

The new plan of examinations mentioned in my last report is generally, if not universally, recognized among us as better than the one previously followed. I believe that brief written tests more frequently made would be still better. Such tests would promote continuity of work on the part of students, for it would render regularity of attendance and steadiness of application indispensable to success; and the habit of continuity is one of the chief ends to be attained in education. To the teacher such tests would afford the most effectual means of keeping himself well informed of the progress of his class as individuals, of their points of strength or weakness, and would, at the same time, sustain and develop his sympathy with their work. At the end of a term spent in such close relations with his students he would be in the best possible position to judge of their respective merits.

Toward the close of the year what is known as the demerit system was abolished in all except the preparatory classes. For some time previous it had been suspended in the junior and senior classes, and the results were so satisfactory as to justify, in the opinion of the faculty, the permanent repeal of the rule for all college students. This action by no means exempts students from accountability; but instead of having a definite penalty measured out by law for each delinquency, they must answer for any abuse of their liberty to the teacher in whose class the delinquency occurs, or in cases of contumacy to the committee of the school in which they belong or to the faculty. For attendance and conduct at drill they are responsible to the officer in command, who may refer aggravated cases to the president or the proper committee.

The same system has been extended, as far as the law of the board of trustees permits, to attendance on the exercises in chapel. The daily record of absences has been temporarily dispensed with. The marking of rolls during the progress of religious exercises, or even at a meeting held for religious exercises, seems to be incongruous, not to say irreverent, and tends to counteract in many minds the salutary influence which the worship might otherwise have. It is also better for the students that they should attend freely, if they will, and that compulsion should be kept at the lowest point consistent with the attainment of its end. It has been carefully stated to the students, however, that attendance at chapel is required, that the suspension of the marking system is as yet but temporary, and that, in case they fail to attend of their own accord, the former method, or one equally strict, will be resorted to.

The average attendance since the suspension of marking has been about equal to that previously maintained, the students, as a body, manifesting a desire to prove that they are not unworthy of the confidence reposed on them.

It remains doubtful, however, in the minds of some, whether the present plan is in full compliance with the rule of the board of trustees, adopted in June last, and reading as follows:

> "All students shall be required to attend the daily general exercises in the lecture-room, and this rule shall be enforced by the faculty."

The adoption of this rule, you will remember, grew out of the fact that the former rule on the subject had been rendered uncertain in meaning by the abolition of the demerit system in the college classes. That system of enforcing attendance at chapel could now be applied only to preparatory students; but to make evident your purpose that the other classes should also attend, you enacted the present rule, that "all students are required to attend the daily general exercises," meaning, as I understand, by "all students," students of every class. That there may be no ground, however, for scruples on this point, I would suggest such a modification of the rule as to remove all doubt respecting the authority of the faculty to continue the present plan.

During the spring term two catalogues were issued. One of them was general and represented the University as a whole; the other was special and represented the school of agriculture and veterinary medicine. Of the former an edition of six thousand copies was printed, and these were widely scattered during the summer by mail and through the teachers' institutes. Of the other an edition of four thousand copies was printed. About half of them were sent by mail to the farmers of the state, and the rest will be distributed through the farmers' institutes this winter.

The practice prevails in most of the larger colleges of binding their reports and catalogues separately. It has evident advantages. Many who are interested in the reports care but little, if anything, for the catalogue, while a large proportion of those who desire the catalogue are young persons seeking information concerning the courses of study, equipment, expenses, and such matters. To them the reports are apt to be an incumbrance; yet, if the documents are bound together, we pay more than twice the necessary postage only to carry to such persons what they do not want. If we could have five thousand of our reports and catalogues bound separately, and could secure a good quality of paper in the catalogues, a cover of suitable color, and a careful correction of the proof, their value would be greatly enhanced.

The committee appointed by the board at its last meeting, consisting of Dr. Townshend and myself, agreed upon the details of the plan proposed by him for a system of free scholarships. Circulars were sent out announcing the offer of a free scholarship in the short course in agriculture to every county of the state, the selection of the recipient being left to the agricultural society of the county. It was expected that this offer would take effect generally for the year 1888–89, but it was made good also for the year 1887–88. A few counties took action immediately, and have sent students for the present year. There are now four such students in attendance, representing the counties of Clinton, Cuyahoga, Perry and Summit. Other counties have taken action since the opening of the college year. I think that we may expect nearly every county in the state to be represented next year—a consummation, I am sure, that we should all rejoice to see.

It may be well to consider the continuance of this offer, and the extension of it to the longer course in agriculture and the course in veterinary medicine. It would insure a better class of students, however, if we should make the scholarship dependent on success in a competitive examination. We ought to receive the best student that the county can send, and the scholarship should be a reward of merit.

The subject of free scholarships naturally suggests that of endowed scholarships. The free scholarship simply remits fees. The endowed scholarship offers maintenance. Some of the brightest and most ambitious minds are lost to the world from lack of the means of culture. A few hundred dollars judiciously bestowed each year, not as a charity, but in recognition of proved ability and scholarship, would in the course of years realize to many a young man the dream of his life, and would give to the state a succession of able and cultivated men. Where such scholarships have been wisely managed they have met with strong approval. They go on in their beneficient work time without limit, sending forth young minds of gifts and training to render better service to men. For what more noble object could wealth be devoted? If he is worthy of praise who endows a charity to feed the hungry, to clothe the naked, or to care for the sick, is not he worthy of much greater praise who opens the way for aspiring minds into freedom and light?

From the beginning of my connection with the University I have felt that there should be some direct instruction on the great themes of religious thought. The more earnest-minded students give to these topics no little attention, some in quiet reflection, others in discussion among themselves. It would be of inestimable advantage to them to come under the influence of minds that have read widely and thought honestly and deeply in this field. A single discourse from such a mind may answer questions or resolve doubts that have caused months of anxious perplexity; or, it may reveal methods of study and lines of argument that will prove a royal highway to a mind that has been groping in the uncertain light which it has been able to strike out for itself. To those who have given to these subjects no serious consideration, such discourses may perform the still greater service of setting open before them new paths of inquiry, and awakening in them an interest in the very highest realms of human thought.

Some weeks ago I brought this subject to the attention of the executive committee of the board, and under their sanction I made an arrangement with Washington Gladden, D. D., to deliver a series of seven discourses on the relation of religion, in some of its leading aspects, to modern thought. The first one, on Evolution and Faith, was delivered in the University chapel Sunday, 6th November, and the second, on the Agnostic Philosophy, was delivered last Sunday, 20th November. The subjects announced and the reputation of the speaker created at once a general interest in the course; and the strength and clearness of the discussions have already given them a commanding influence. I earnestly hope that you will find it practicable to authorize an arrangement for a similar course to be delivered by one or several persons each year.

Perhaps there is no point on which the University has been more generally misunderstood than its attitude toward religion. It is christian, but undenominational. This is the true position, not only for a state university, but for any university. There is an essential unity of christian thought, a common ground of belief, which embraces all that is essential; and one of the peculiar and most conspicuous aims of Christianity is to bring mankind into a oneness of spirit. As men ascend toward the heights of christian life, arbitrary lines of separation fade from their sight. No institution of higher learning, therefore, ought to strengthen divisions by magnifying unimportant matters of belief. It should rather seek to cultivate breadth of view and catholicity of spirit. Happily the current of the time is set in this direction. The churches themselves are tending to uniformity, and are sinking their distinctions of doctrine out of view. But especially is this true of all great educational foundations. The first colleges of the country have outgrown the narrow and restraining peculiarities under which they passed their early history, and have become undenominational. But they have not ceased to be christian. They distinctly seek to inculcate religious doctrine and to foster religious sentiment. Nothing could more depreciate the value of higher education than that it should be given and received under the malign influence of a sordid utilitarianism or a dead materialism.

It is gratifying to say in this connection that the branch of the Young Men's Christian Association, founded in the University five years ago, continues its organization and maintains regular services. It exemplifies christian unity in a practical way, since it includes members of eight different denominations, who work together in uninterrupted harmony. A few weeks ago a branch of the Young Women's Christian Association was organized, and it now holds weekly meetings for Bible study and devotional exercises.

The rapidly growing interest in industrial education is one of the signs of the times. It is but a result of the growing importance of the subject. To us it is a matter of immediate concern, because the duty is incumbent on us, first of all, to afford industrial education. By the terms of its creation the University is primarily, though not solely, an industrial institution, and we can not view with indifference the development of a condition of society which makes it more and more evident that such institutions are a special need of the time. In all the leading countries of Europe there is a settled conviction that the only way to hold any commanding place in the markets of the world is to train workmen in the science as well as the art of their occupations. Accordingly individuals, corporations, and governments have organized schools in which their workmen may be instructed. The result has been the development of manufactures, the improvement of the quality of their productions, and the diffusion of intelligence and self-respect among the laboring classes. The day has come which was predicted by Humboldt: "The time is not far distant when science and manipulative skill must be joined together."

In America we are but beginning to appreciate the vital relation of science to industry. But the subject is being rapidly forced upon us as it has been upon the older nations of Europe. Technological schools have been founded in various places, and some of them have had a remarkable growth. The land grant of 1862 contemplated "the liberal and practical education of the industrial classes," and was the fruit of a prophetic wisdom. It anticipated a condition which but few at that time were able to comprehend, but which is now becoming more and more apparent. Social pressure was then almost unknown among us; now the symptoms of it are manifest in almost every city, every mining district, and every great manufactory. The remedy lies, to a great extent, in wisely directed industrial education, and for that a foundation is already providently created. This foundation should not be administered, however, in a narrow and mechanical way, but with a spirit as broad and enlightened as that which gave it existence. It should not be suffered to degenerate into a means of making men better machines for the shop and the field, but should be constantly employed to awaken, to inform, to strengthen, and to direct the intellectual and moral powers, to make more skillful workmen, more intelligent citizens, nobler men. The special value of industrial education consists in the fact that, while it trains the eye and the hand, it sharpens the faculties and renders knowledge clear and real. It does this by making actual under the hand what the mind would otherwise conceive but dimly and uncertainly. For vague and cloudy ideas it substitutes ideas that are definite and distinct. It is the uncompromising foe of that mixing up of things which George Eliot calls the great Bad. The clearness and force which are thus acquired are the chief factors in the success of even the manual laborer, for skillful handcraft requires no mean order of intelligence. A young carpenter in a lètter written to Mr. Gladstone in 1875 pnts it in this way: "I can say that the best work is invariably given to the man who is able to keep up a constant communication between his brains and his hands, not merely passive in character, but active, concentrated, and almost unintermittent. His eye, his brain must be constantly acquainted with some new design, and he must be able to avail himself of whatever mechanical resources may suggest themselves to his mind." Both the good of society, therefore, and the good of the individual would be promoted by the rapid development of the technical departments of the University. The extent of this development should be limited only by the means that we can command for the purpose.

The near approach of the Ohio Centennial Exposition makes it important to consider at this meeting of the board what part the University shall take in that event. It is certainly desirable that the various departments of the institution should be well represented. As it is probable that the grounds selected for the exposition will be overcrowded, and as the University is so near, it would be convenient as well as appropriate, that the exhibit of the department of science and education should take place at the University. We are greatly in need of a building containing ample space to be used as a drill hall and, at commencement and other important occasions, as an assembly hall. It would serve also as a gymnasium. If such a building should be erected during the next season, it would accommodate the educational exhibit of the centennial. But whatever may be decided as to the place and manner of our exhibit, some adequate provision should be made for it at the present time or in the near future.

The reports from the heads of the various departments of the University present an encouraging view of the character, extent and recent growth of our work, and a view, not discouraging as I regard it, of its immediate and, in some cases, imperative wants.

THE TECHNICAL DEPARTMENTS.

1. Agriculture. The studies in this department present a wide range of useful and practical instruction, while the farm, the gardens, and the orchard afford excellent opportunities for observation and practice.

It may be well to inquire whether the farm can not be made to subserve in a still greater degree than heretofore the ends of the University. In the first place, may not a greater range of experiments be carried on? I would include a larger number and variety of experiments in agriculture and horticulture, experiments in the breeding and rearing of stock, experiments in dairying, and perhaps others. If the last were undertaken, the dairy would have to be carried on, in part at least, for other than commercial ends. It would be necessary also to incur the expense of a dairy house. But the experiments would have great interest, and might prove to be of great value, to this large and important industry.

In the second place, may not the farm be made to subserve more directly and effectively the purposes of instruction? It might be a laboratory of the agricultural and horticultural departments. To some extent it is so already. If it should be made so to a still greater extent, the students would derive decided advantages. Two such advantages are very obvious: first, their farm work might be so directed as to illustrate and give reality to the teaching of the class-room; and secondly, it would keep up the habit and the love of farm labor.

The suggestion to require outdoor labor of the agricultural students, and the previous suggestion to extend the work of experimentation, support each other. The required labor, being a part of the student's course of instruction, would not be paid for; and thus a considerable amount of labor would be available free of cost. The extra labor of students should of course receive compensation.

2. Agricultural Chemistry. The development of this comparatively new department goes on satisfactorily. Of the twenty-one students now in its classes, three are doing the work of the second year. The professor in charge has contributed a material part to the work of the state experiment station, the food and dairy commission, and the city board of health.

3. Veterinary Medicine. This department was able, with its improved facilities and the increased number of patients at the clinic, to accomplish even better results than before. The first graduate received the degree of D. V. M. at the last commencement. The number of students remains small, which seems to indicate that the public does not

yet appreciate the importance of having thoroughly trained veterinarians.

4. Civil Engineering. The piece of actual work recently done by one of the classes of this department in the survey of a piece of railroad line entering the city, was creditable to the department and to the students, engaged in it. There has been a steady improvement in the equipment of the department, but all its wants are not yet supplied. The models asked for and an instrument for the more accurate measurement of angles should be provided when the means can be spared.

5. Mechanical Engineering. No part of the university calls forth more favorable comment than the mechanical laboratory. It interests and impresses the visitor by its obvious usefulness and its adaptation to its purpose. It furnishes that kind of industrial education to which the public mind has of late been specially directed, the kind which will contribute more than anything else, save an increase of general intelligence and morality, to solve the grave industrial problems of the time. Manufacturers realize the necessity of more scientific methods and more highly trained skill. They see that inventive power, precision, superiority of finish, and economy of production are indispensable to meet the pressure of increasing competition.

The enlargement of the department should, therefore, in my judgment, engage the attention of the board at an early day. As far as it goes the present equipment is excellent, and the recent change in the course of study, by which advanced instruction is given in the laboratory, will add much to its value to the student. But this form of instruction is of necessity confined almost to manipulation. The student learns to perform the processes of the shop, but he has little, if any, training in the construction of actual machinery.

Such an extension as I have suggested would involve the appointment of a foreman, who should be both a workman of experience and skill and a competent instructor. It would involve also the continuance of work during the summer. At that time the students could be employed without interruption by the demands of other classes or of general college duty. They could also be employed in the construction of articles needed in the various departments of the University, or of machines for the general market.

The testing-machine has proved inadequate to the demands on it, and I join in the request that as soon as convenient one of greater capacity be purchased.

6. Mining Engineering. This department represents one of the most prominent of Ohio industries, and has recently attracted more attention than before from those who are interested in mining. At a

meeting of the Ohio Institute of Mining Engineers held in Ironton, June 28, 1887, a committee was appointed to ascertain the wants of the department, and to co-operate in securing such legislation as may be necessary to place it in the condition which, from its importance, it deserves. It is asserted by those familiar with the subject, that the waste at our mines and furnaces from the absence of scientific methods is enormous. In our own state this is a matter of great economical importance. The production of coal in Ohio last year was 8,435,211 tons, and the number of men employed at the mines, 20,407. Of iron ore the production was 344,484 tons. Within the year seventeen new mining companies were incorporated, with an authorized capital stock of $4,784,800.

Recognizing the claims of this branch of industry, the legislature, by an act passed 7th May, 1877, established the department of mining and metallurgy at the University; and by an act passed 1st May, 1878, made it the duty of the board of trustees "to provide for the teaching of such branches of learning as are related to mines and mining engineering." We may hope, therefore, that the present movement to secure a further development of this feature of the University will meet with encouragement and success.

The value of the instruction would be greatly increased by a few weeks spent at the mines annually during the summer. The class should go in a body under the direction of the professor of mining engineering, and make actual observation day by day of the various operations. Notes should be taken on the spot and submitted to the frequent inspection of the professor. A month or two spent in this way would give an actual knowledge of mining machinery and operations which it is impossible to impart at the University.

7. Pharmacy. The pharmaceutical cabinet has continued to grow by the generous donations of various wholesale druggists, and is a useful adjunct to the department. The good quality of the work done is evinced by the success of our students at the examinations by the state board of pharmacy.

In framing the course of study it has been found necessary to create special classes in materia medica, microscopy, botany and toxicology, besides those in pharmacy proper. This has imposed additional work on the other departments, some of which were already crowded.

A still more serious matter, under the present financial circumstances of the University, is the unexpected expense of the department. The salary of the instructor in pharmacy, small as it is, was not fully allowed for in the beginning; and the need of a separate laboratory was not anticipated. Till now the laboratory of the department of agricultural chemistry has been used by the students in pharmacy; but next term the students in agricultural chemistry will need all, except perhaps two or three, of the desks. As the teacher of pharmacy says in his report, "the matter of providing working accommodations is something which needs immediate attention."

8. Drawing. The work here has been faithfully done, but under some disadvantages. There is need of additional appliances which a small sum will supply. I would recommend an appropriation sufficient to provide the things asked for.

9. Military Science and Tactics. The battalion is larger the present term than ever before in the history of the University, and is admirably sustained. I ask your favorable consideration of the suggestion by the commandant that commissions and warrants be issued to the officers. The action of the board of trustees at the meeting held last June requesting again that the scheme of work in the University be so arranged, if possible, as to admit the sophomores to the battalion, was felt to be almost mandatory. Another attempt was accordingly made and the result has finally been accomplished. But it has been done at the sacrifice of other important interests. Students are excluded from elective studies that would otherwise be open to them, and extra work is imposed where the amount was already large, not to say excessive.

General Science.

1. Mathematics and Astronomy. The intimate dependence of several other departments upon this one has made the change in it already mentioned a matter of concern. We have reason to believe, however, that the former high standard of work will be maintained and that students will pass to other studies involving mathematical knowledge with an adequate training.

A working observatory is still a *desideratum*. Six thousand dollars invested to supply it would add immense value to the instruction in astronomy.

2. Physics. The physical laboratory has been augmented by the purchase of some choice pieces of apparatus, notably a standard resistance coil, a cathetometer, and a magnetometer. The remaining want which takes precedence of every other in this department is that of an electric light plant. The prominence now given to the subject by the rapid development of the applications of electricity, the desire for instruction in the subject, and the demand for instructed men, make a strong plea for the supply of the means for thorough practical work at

the University. I hope that we shall not be obliged to wait long for what is so needful.

But the department will never be placed on the footing that it should occupy until it has an ample and completely furnished building; and I do not know how any friend of science or of the University could confer a greater benefit on either than by rearing here such an honorable and enduring monument.

3. General Chemistry. The collections and conveniences of this department have improved year by year till its working equipment is perhaps more nearly complete than that of any other department of the University. In books and collections, however, there is still indefinite room for expansion.

4. Botany and Horticulture. A part of the work of this department is technical, but since all of the theoretical instruction in the subjects that belong to it is given here, I include it under general science.

The range of work is wide and the duties of the professor in charge, especially during the spring term, are onerous. The practical character of the instruction and the methods recommended are worthy of a cordial indorsement.

The new propagating house will meet a need that has been felt for some years. The other needs to which attention is directed in the report of the department, should be supplied as funds can be spared. The reasons for the establishment of a botanic garden are no less numerous or strong now than they were last year. Such a garden would be highly useful, not only to the University, but to the public.

5. Zoology and Comparative Anatomy. The necessity for additional appliances in this department has grown still stronger with the year. You have twice responded to the request of the professor in charge by appealing to the legislature for an appropriation. But nothing is yet done. I trust that you will place this first on your list of appropriations for department supplies, and that the urgency of the case may be made so clear to the incoming legislature that an adequate sum will be allowed.

6. Geology. The growing size and value of the museum give yearly increasing force to the plea for a fire-proof building in which to preserve it. The request for a small appropriation with which to employ an advanced student in geology to have charge of the museum, and show proper attention to visitors, is commended to your consideration. It can the more readily be granted for the reason that a considerable part of the salary is saved during the absence of the head of the department. A continuance is asked of the arrangement by which he has been absent during the spring term of the last three years. We are reluctant to lose his presence and his services for nearly a third of the

year; but his earnest desire and the value of his labors elsewhere are strong reasons why the request should be allowed.

LANGUAGE AND LITERATURE, HISTORY AND POLITICAL SCIENCE, AND PHILOSOPHY.

1. English Language and Literature. The recent erection of this into a distinct department is another step in the steady development that has characterized the University from the beginning. What was at first one department is now divided into three, English, French, German; and besides this, two others, History and Political Science, and Philosophy, which were introduced as branches of this department, have been made independent. The high rank of these subjects merits all that has been done, and of none of them is this more true than the English.

I hope that the request presented by the head of the department for the purchase of books can be met from the library fund.

2. German Language and Literature. The work here has been enlarged to such an extent that it is in some respects quite heavy. I have already mentioned one great disadvantage of the present arrangement of the classes in German—a disadvantage so great that it ought in some way to be removed.

3. French Language and Literature. The separation of the German from this department has left the instructor a much more reasonable amount of work to perform. This has rendered possible a division of the sophomore class into two sections, the students in the course in philosophy pursuing literary French, while those in the course in science pursue scientific French. French is now offered also as an elective in the junior and senior years of the course in arts.

4. Latin Language and Literature. It was expected that the requirement of a year of Latin for admission to the preparatory course would diminish the entering class; but, although several applicants were unable to enter on account of this requirement, the class has exceeded its usual number. The new rule went into effect in September, 1886. In 1885 the first preparatory class in Latin numbered twenty-six, and the second thirty-one. In 1886 the first preparatory class numbered twenty-five, and the second thirty-two. In 1887 the first preparatory class numbers thirty-one, and the second twenty-six. We may infer that if the standard had not been raised there would have been a considerable increase in these classes. In the German classes, to which admission is obtained as before, without previous knowledge of the language, the increase has been marked. In 1885 the first preparatory class numbered forty-one, and the second twelve. In 1886 the first pre-

paratory class numbered sixty, and the second twenty. In 1887 the first preparatory class numbered sixty-three, and the second twenty.

5. Greek Language and Literature. The Greek language has a place in but one of the nine courses of study that lead to degrees. The classes in it are not large, but the students who choose this course are usually of those who remain till they have taken their degree. Hence they constitute a large proportion of the graduating classes. In 1884 there were thirteen graduates, five of whom received the degree of bachelor of arts. In 1885 there were sixteen graduates, four of whom received this degree. In 1886 there were eighteen graduates, six of whom received it. In 1887 there were twenty-five graduates, eight of whom received it.

Yet the departments of Greek and Latin have received but little aid. While other departments have been fostered, these have simply been permitted. The total expenditure for books and other supplies for both departments since the origin of the University must be less than a thousand dollars. They draw almost nothing, therefore, from the general resources. On the other hand, they create an opportunity which is eagerly sought by many students, and they spread a wholesome liberalizing influence throughout the university.

Your attention is called to the united request of the professors of Latin and Greek for the means to procure maps, plans, photographs, casts and other means of illustration. The sum asked for is small, and the object sought is very desirable.

6. History and Political Science. The popularity of this department is shown by the number of students electing work in it. The prominence into which historical and economical subjects have been rapidly growing has given a strong impulse to the study of them in the leading colleges. As a preparation for the rights and duties of free citizenship, a college can furnish no more suitable instruction.

The amount of time allowed to history in one or two courses is happily sufficient to enable the most advanced class to carry on some work in original research. As a means of training, this is highly valuable; and the seminary method, which is employed in this class, is the best that has been devised for the purpose.

7. Philosophy. It is to be regretted that as yet the work in this department is altogether elementary. No student receives any instruction in it till he reaches the junior year, and then he can obtain it but three hours a week during the two remaining years. In that limited time he pursues four distinct studies, psychology and logic each two terms, and ethics and the history of philosophy each one term. Advanced courses in psychology and ethics, a course in metaphysics, and a course in recent philosophy ought to be introduced; and we can lay no claim

to completeness in this kind of study until this much at least has been done. I need hardly say, however, that as long as the chair in philosophy is joined with the presidency of the University, it will be impossible to cover so wide a field. It is a field which should command the whole time and energy of the instructor.

Two desirable changes have recently been made in the course, by one of which two terms are given to logic, instead of one, and by the other ethics is placed as a required study in all of the general courses.

GENERAL.

1. The Library. Your attention is asked to the report of the librarian. The quality of our library is exceptionally good. The books have been carefully selected and are the best in their several departments. But we still lament their fewness and the slowness with which their number increases. The situation is strongly presented in the statement of the librarian that "at least five times the sum appropriated last year should be expended for the next five years in order *to lay a proper foundation* for a first class college library."

It is important that some one should be employed who can give undivided attention and service to the library. The librarian has charge of one of the departments of instruction; besides which he is secretary of the school of arts and philosophy. It would be unreasonable therefore to ask of him more than a careful supervision of the library. This he gives, and more, with care, intelligence and faithfulness. The sum at present allowed for an assistant is too small to pay for the entire time of any competent person. The service was never better than it is now, but, being performed by a student, it is necessarily limited.

2. Grounds. The report of the superintendent of the grounds directs attention to several important matters. What he says of the advantages of beautiful surroundings is certainly true. It is also true that our own are gradually improving in their appearance. If, however, we wish to keep a smooth and handsome lawn, one of the requisites will be the use of a horse lawn-mower.

The lighting of the grounds is a subject worthy of your consideration. As a police measure it would have its value, though we are fortunate in having little occasion for police regulations. On the occasion of public entertainments given in the evenings, it would be convenient to our visitors and creditable to the University, if those who attend were not compelled to grope their way in darkness to the building and back again to the street. The recent improvement of the gas-works would make the addition of this desirable feature to our grounds comparatively inexpensive; and if an electric light plant should be procured, it would afford the means of a brighter and more general illumination.

The new pavement that has been laid on High street in front of the university grounds was much needed and is much appreciated. Besides the convenience it affords, it improves the appearance of the street. In this connection I would ask you to consider the improvement of the main entrance to the grounds. The gateway should be enlarged and beautified and suitable lights should be placed on either side.

I would recall to your notice also a subject which has already received some attention at your hands. I refer to the preparation of a general plan of the grounds for future guidance in the location of buildings and the making of other improvements.

The appropriation of $2,000, asked for by the superintendent of grounds, will scarcely afford the means for what should be done within the coming year.

Such is a survey of the work in which the University is engaged. Such, too, are some of its leading and more pressing wants; and when we look from what has been done to what remains to be done before our ideal can be attained, the necessities seem to be very great.

The general policy of the University should now be directed to the proper development of the existing departments. The aim should be to bring them all to the highest state of efficiency. Some other departments are still necessary to complete the sphere of university work; but no attempt should be made to create them until resources are available for that particular purpose. Thoroughness in what has already been undertaken will be more satisfactory to those who conduct the work, more useful to students, and more honorable to the institution.

What should be kept steadily in view is the soundness and vigor of the University in every part. A strong pervading energy, a high plane of sentiment, an earnest intellectual and moral tone, are the best of all conditions for educational work. They are also the best means of gaining the resources for expansion. Whosoever improveth what he hath to him shall be given.

In preparing our requests to the legislature at the coming session, I would recommend the selection of a few objects which are most necessary, most likely to meet with favor, and on which we may concentrate our efforts. Leaving others for future consideration, I desire to speak particularly of one. The one eminent object that we should seek is one-twentieth of a mill on the grand duplicate of the State. This method of providing for the growth and maintenance of the University commends itself, so far as I have learned, to all of its friends. If once adopted and adhered to, it will end our annual concern and our annual appeal. It will end the hand-to-mouth policy now forced on the institution. It will justify permanent plans for its future work, and infuse confidence and steadiness into all its operations.

And what do we ask? But one-twentieth of one-thousandth of a dollar. Assuming that the population of Ohio has increased during the present decade at the same rate that it did during the last one, the amount named is an average of two and one-seventh cents from each individual; whereas, taking the tax duplicate to represent two-thirds of the actual wealth of the state, the accumulated property in the hands of each individual, man, woman and child, reaches an average of $682.78.

We have on former occasions pointed to the example of other states. I venture to do so once more. Minnesota was organized as a territory less than forty years ago, and was admitted as a state less than thirty years ago. At the time of the last general census her population and wealth were about one-fourth the population and wealth of Ohio. Yet her state university has a productive fund of $600,000, more than one-tenth greater than that of the Ohio State University; and it has a library of twenty thousand volumes, while that of the Ohio State University barely touches eight thousand volumes.

But while the State should do a liberal part in building up here a university of the first rank, are there not other sources to which we may justly look for aid in this great enterprise? For its growth the first necessity is money, and it must be obtained in large sums. Buildings are needed; appliances are needed; books are needed; men of ability and ripe scholarship are needed. But to secure these or any of them money is an indispensable requisite. Has not the time come when it can be obtained? And should we not unite—trustees, faculty, alumni, students, friends—to awaken public interest in the welfare of the University?

Why may we not look for donations from private wealth? Surely there are men of large means in Ohio, whose generosity and public spirit should lead them to devise and execute liberal things for the University. With wealth around her flowing so profusely in other channels, why should she, conspicuous above almost every other liberal enterprise, be allowed to suffer for lack of means? Great educational foundations are rising in every part of the country. The magnificent gift of Mr. Clark at Worcester, Mass., and that of Mr. Stanford in California, are among the largest ever made to education by a single individual. Some of the greatest foundations are rapidly increasing. In the year 1884–85 Harvard received gifts amounting to $146,000; Yale,

$111,000; Syracuse, $122,000; Williams, $150,000; Vanderbilt, $210,000; the University of Virginia, $490,000, and Columbia, $542,000. The gifts to the colleges, universities and schools of science in the United States, made during that year, reached the grand aggregate of $5,500,000. The sums given in Ohio during that year, for the same objects, made a total of nearly $350,000. Large benefactions have also been made here and elsewhere for other objects. They all bespeak a noble spirit, and have been devoted to noble ends. But I wish that we might reach the ears and hearts of the men and women of wealth in Ohio, and make plain to them what an opportunity awaits them here? Where would benevolence yield more abundant fruit? Where would it be more strongly reinforced?

Wealthy men in the state of New York have comprehended the advantages of a similar situation, and have poured gifts upon Cornell University with a lavish hand. More than a million and a half of dollars have been given from private sources, in donations ranging from $2.50 up to more than $650,000. One has built a conservatory; another a chapel and a college building; another a building for the library. One has endowed a lectureship, and another has, by successive donations, provided buildings, machinery, models and endowment for the mechanical department. What wonder is it that the present freshman class of that University numbers four hundred students, the largest class ever received by an American college?

While universities and colleges, east and west and south are thus advancing, shall our own stand still? Shall the university founded and governed by this great central state, among the richest and most populous in the Union, continue to suffer restraint in its work and in its growth, while the universities of other states make a rapid and almost unhindered progress?

I congratulate you on the prosperity of the past, and I join you in strong and fervent hope for the future. May the year on which we have now entered mark the opening of a yet higher and more prosperous career for the institution under your care.

Respectfully submitted,

WILLIAM H. SCOTT.

Ohio State University, November 22, 1887.

DEPARTMENT REPORTS.

MATHEMATICS AND ASTRONOMY.

President W. H. Scott:

Dear Sir: I have the honor to submit the following report upon the department of mathematics and astronomy, for the college year ending June, 1887.

The number of students enrolled in the department was as follows:

Fall Term.

First preparatory—Algebra	64
Second preparatory—Geometry	57
Freshman—Trigonometry	34
Sophomore—Analytic Geometry	19
Junior—Astronomy	14
Total	188

Winter Term.

First preparatory—Algebra	62
Second preparatory—Geometry	53
Freshman—Higher Algebra	41
Sophomore—Calculus	16
Junior—Geodesy	6
Junior—Potential Function	2
Total	180

Spring Term.

Second preparatory—Trigonometry	50
Freshman—Analytic Geometry	39
Sophomore—Calculus	14
Junior—Astronomy	11
Total	114

Whole number of enrollments	482
Number of students (no name counted twice)	196

During the present collegiate year considerable changes have been made in the course of mathematical study offered to students. The courses in spherical and practical astronomy, geodesy, and the potential function were given for the first time in this University. The recent revision of the curriculum has also rendered it possible to open, for the first time, as an elective to students in the arts and philosophy courses, the mathematics of the winter and spring terms of the freshman year. The work of these terms has been so modified as to afford to those students desiring to pursue the study of physics in their sophomore year, a better preparation in mathematics than has hitherto been practicable. Students taking mathematics in their sophomore year are, by the same change, enabled to commence their calculus at the beginning of the fall term instead of the winter term, as heretofore, and thus gain additional time for this very important branch of mathematics.

Owing to changes in the curriculum by which descriptive astronomy is transferred from the junior to the senior year, I have had no class in that subject during the present year. Notwithstanding this loss of one class, a comparison of this report with my preceding one will show a very gratifying increase in the number of students pursuing work in this department.

Very respectfully,
GEORGE C. COMSTOCK,
Professor of Mathematics and Astronomy.

Ohio State University, June, 1887.

PHYSICS.

President W. H. Scott:

DEAR SIR: The following report of the department of physics, for the year ending June, 1887, is respectfully submitted.

The work of instruction was divided as heretofore, in three grades. The second preparatory class, continuing through the second and third terms, numbered seventy-two students. The sophomore class numbered thirty-three and the laboratory sixteen.

The appropriation of a thousand dollars placed at our disposal enabled us to procure two very fine pieces of apparatus. One is a cathetometer, with a standard meter bar for use with it, made by the Geneva Society, of Switzerland. The other is a magnetometer, of the Kew pattern, from Elliott Brothers, London. A standard resistance coil was also purchased. The coil was compared with the British Association Unit, and has the certificate of Prof. Glazebrook, secretary of the standard committee, showing the result of the comparison. The addition of such instruments as these has resulted in increased interest in our laboratory work, and improved the quality of the work done. The disadvantages we work under in our present rooms are increasing, as the number of students engaged in the laboratory increases, and as we attempt more accurate work. "It is now conceded that the most valuable training in physics is that obtained in the laboratory, and the smaller colleges are following the example set by the leading institutions in this and other countries in erecting laboratories especially adapted to such work. We are obliged to use our lecture rooms as rooms for laboratory work also, an arrangement which is for several reasons undesirable. Many students are obliged to work near each other, and are unable to give their work the close attention so necessary to the attainment of good results. Unavoidable noises distract them, and vibrating floors and walls continually disturb the adjustment of their instruments, making many exercises difficult, and some impossible. The best rooms we have are in the basement, and are poorly lighted, and worse in ventilation, and there is nothing better to be had in any of the university buildings. A suitable building is a necessity." I wish to emphasize these words from my last report to you, and to express the hope that this pressing need may receive the early attention of yourself and the board of trustees.

I wish also to ask your attention to another matter. You are aware that there is an increasing demand among our students and from without, for work in applied electricity. This demand has been met so far as our equipment will enable us to do it. Electrical engineering is rapidly becoming a profession, and must soon take its place beside mechanical and civil and mining engineering in the work of technical schools. The rapid extension of electric lighting, electric railways, the use of electric motors in manufacturing, etc., calls for young men thoroughly trained both in the science and in the art of electricity. This University ought to supply the demand for Ohio, at least, but we cannot give young men a training which, when put to the test of practical use, will be satisfactory either to themselves or to their employers, until special provision is made. Sound theoretical knowledge is necessary to the highest success, and can be given with but little apparatus, but theory alone is not sufficient. It must be supplemented by thorough practical knowledge, before the student can enter on the practical life for which he has been fitting himself. I ask that an appropriation be made for this purpose. We need an equipment with which practical instruction can be given in the use of such electric machinery as is now used commercially. This will comprise a steam engine, at least four dynamo machines of commercial size, an electric motor, dynamometers, arc and incandescent lamps, and the necessary line wires, insulators, switches, etc. etc. The machinery will need a small building, which will not be expensive. I respectfully urge that an earnest effort be made to secure the necessary means from the next legislature.

Very respectfully,

Benj. F. Thomas,
Professor of Physics.

Ohio State University, Oct. 4, 1887.

GENERAL CHEMISTRY.

William H. Scott, President:

Dear Sir: I have the honor to present herewith this the fifteenth annual report of the department of general and applied chemistry.

The total number of students enrolled in my classes last year was 99. Of these twenty-seven were in the analytical laboratories, seventy-two in the class in inorganic chemistry, and forty-eight in that of organic chemistry. Besides these classes, others were maintained most of the year in stoichiometry (a class of 7), and in the analyses of foods and of poisons (the pharmacy class of 3). These two classes were both taught by my assistant, Dr. O'Brine.

In addition to this work, two of our seniors undertook an investigation into the character of the water furnished by the city of Columbus, with special reference to the variation, if any, of the so-called organic contaminations. A room was specially fitted up for their use in the basement, and in this they tested the city water each week from January until June. The result of their labors is embodied in their joint thesis, and is a contribution to sanitary science. It is desirable that this work be repeated in order that sufficient facts may be accumulated to show the nature and character of the differences they observed, and possibly to ascertain its cause and cure. Their report shows, incidentally, that the water is, in general, exceedingly good, and for some weeks they found only traces or absolutely nothing of organic matter in the water.

But little progress was made last year in adding to our collections in applied chemistry. A suite of specimens of raw rubber was obtained for us through the Columbus Rubber Co., and another suite of lubricating oils through one of our own students.

A collection of minerals employed in paints, and for uses in chemistry was purchased, and is duly arranged. Our exhibit of "Industrial Chemistry" is growing steadily, and I shall endeavor to make it as nearly complete as circumstances will allow. It seems to me possible that a second "Kensington Museum" could be established on our grounds, if our friends would assist us as readily as we have been helped by others who are nearly strangers to us.

As regards the apparatus of the department, I have only to say that it is, in general, in good condition. I would like to purchase a few hundred dollars worth of the new forms for lecture experiments, but am admonished that the necessary expenses of the department are large. One necessary expense is books, and although we have a small working reference library, we need a much larger one. We need sets of the chemical journals, English, German and French, and need to keep them up. For a complete set of one of these, Liebig's Annalen, I have asked the board repeatedly. It has been a worry to me of late years that the students are asking me for books on the history of chemistry and of chemical theory, which I cannot give them. The number of such books printed in English is not large, and of course we should have as many as we can get. My list would include with profit out-of-the-way books on alchemy and the "black art." We need also a few special treatises on the applications of chemistry to the arts, such as the new Muspratt, or the new Bolley Technological Chemistry. That our little library has been well thumbed, the bindings will show. As a matter of course it has been kept almost entirely as a reference library; only a few dozen of the books have been loaned out for a week at a time.

Dr. David O'Brine completed his last, the tenth, year of service with us in June, having taken upon himself new duties in the Agricultural College of Colorado. It is only just to make it a matter of record here that he has always shown himself a faithful servant of the University, and has proved himself, when occasion offered, a zealous friend to its best interests. Personally I greatly regret his leaving us.

Very truly yours,
SIDNEY A. NORTON.

GEOLOGY.

President W. H. Scott:

DEAR SIR: I herewith present my report of the department of geology for the last academic year.

The number of students enrolled in the several classes of the department during the year was 88. These students were distributed among the classes named below as follows:

General geology, junior class, 2 terms	10 10
Economic geology, junior class, 1 term	10
Paleontology, senior class, 2 terms	2
Physical geography, 1st preparatory class, section A, 1 term	32
" " " " B, 1 term	34

Deducting students counted twice in this enumeration the total number pursuing studies in my department was 77.

From a cause named in the last report, viz., a change in the programme, making geology elective in the arts and philosophy courses, and deferring the election to the senior year, the number in my classes in general geology last year was somewhat smaller than usual. This year, however, the election is possible to the present senior class, and I find the usual number in my recitation rooms.

As I have done for several years, with your consent and that of the board of trustees, I left the University at the end of the last winter term to undertake special geological work for the spring and summer, returning to my professional duties at the opening of the fall term in September. This arrangement I desire to continue for still another year, if possible.

I have added a considerable amount of new material to the museum during the last year. The most important additions are additional samples of drillings from the deep wells that are being sunk in all parts of the state. This collection has a unique interest and value. It is not at all probable that the opportunities for duplicating it will ever occur.

The work of cataloguing the specimens in the museum has been carried forward, and more than 6,000 titles have been recorded, many of them standing for a dozen or a score of duplicates.

In regard to a new building for the geological museum, I have no new pleas to make, and it seems unnecessary to repeat those already urged. The necessity for better provision for the valuable material already accumulated, and for the large additions that could easily be secured, if a proper place for their preservation could be promised, still continues, and gains rather than losses in urgency.

If such provision can be made, a museum that will be creditable to the University and to the state can be guaranteed.

The museum in its present state requires more time and labor than I am able to give to it. It is a source of interest and instruction to many persons who visit the University. I should be very glad if a small appropriation could be made to secure the services of one or more of my advanced students, who could have charge of the room, and answer the questions of visitors during four or five hours each day.

Very respectfully,

EDWARD ORTON,
Professor of Geology.

Ohio State University, October 31, 1887.

BOTANY AND HORTICULTURE.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following report of the department of botany and horticulture for the last academic year.

The whole number of students receiving instruction in this department during the year was 116.

The following statement presents the subjects taught and the number enrolled in each class:

Fall Term.

Economic and applied botany	10	
Advanced structural botany (sophomores)	28	
Vegetable histology (laboratory)	1—	39

Winter Term.

Vegetable histology and physiology	6	
Cryptogamic botany	21	
Structural botany (special)	1—	28

Spring Term.

Small fruit culture	9	
Landscape gardening and floriculture	7	
Advanced botany (gymnosperms, etc.)	19	
Structural and systematic botany	70	
Special botany (field work)	8	—108
Total enrollment in all classes		175
Number of different students		116

As heretofore the instruction given has been in the form of lectures, laboratory practice and field work.

The aim is to train as well as to teach. A large portion of the time spent in the class-room is given to the direct study of plants or their products. Text-books are used mainly for reference. This method develops the faculty of observation and trains each student to acquire knowledge readily and accurately for himself.

The work of the spring term was heavy and exacting. I was only able to carry it to a successful termination by the timely and valuable assistance of Mr. Moses Craig, a special student in this department.

In the main the students have been earnest and their enthusiasm made the work of instruction a pleasant task.

MATERIAL EQUIPMENT.

Regarding the general equipment of the department and its means of illustration, it may be said that in certain directions these are admirable, while in others they fall far below those of corresponding departments in other institutions.

The most urgent need in the way of equipment is now being met in the construction of a propagating house.

Up to this time plants for the use of the gardens and campus have been propagated in a very unsatisfactory manner in a series of unsightly hot-beds located on the slope just south of horticultural hall. These have just been replaced by a low, inexpensive propagating house, 60 feet in length by 25 feet in width, which, when completed, cannot fail to add much to the usefulness of the department.

What is still needed is two-fold. The first requisite is a generous provision of illustrative material, especially in the line of applied botany. The efficiency of the department, its attractiveness in the eyes of students, its standing before the public, can be greatly enhanced by the expenditure of sums that would appear insignificant if asked for by other departments of the University. This assistance is of a tangible sort and can be readily furnished. The other need, though less tangible, is no less important. It is the need of assistance in the way of properly preserving, labeling and arranging the material now in the museum.

Something has been done in this line during the past year, but lack of money and want of time on my part have made it impossible to do much. The immense amount of labor required to make a really instructive botanical museum is not well understood. An herbarium is as necessary for the student of botany as a herd-book or register is to a breeder of thoroughbred stock.

We have a large amount of valuable material in the way of dried specimens. To properly mount and arrange it will require both time and money, neither of which have been at my command during the past year.

As far as possible the specimens have been kept in a good state of preservation.

SUGGESTIONS FOR THE INCREASED EFFICIENCY OF THE DEPARTMENT.

The number of students attending my courses of study depends, to a very considerable extent, upon the success of other departments of the university.

Whatever tends to increase the number of students in agriculture is a gain for the department of botany and horticulture. I am, therefore, heartily in sympathy with the plan of offering "free scholarships" in the two years' course in agriculture.

If this offer is thoroughly advertised, and the appointments based upon a free and fair competition, I believe the advantages offered will be very generally improved by those who expect to be farmers and gardeners.

Inasmuch as few farmers' sons can afford to spend five or even four years in college, the new arrangement of the courses of study by which instruction in agriculture and horticulture is placed earlier in the course is a good one. What is now needed in the agricultural courses is more *field* or laboratory work in connection with the instruction of the class-room.

I am more and more convinced that unless a student understands something of the *art*—the practice—of agriculture and horticulture, it is well-nigh impossible for him to appreciate and clearly comprehend the science upon which the art is based. The art cannot be acquired in the class-room, and I most respectfully urge that the superintendents of the farm and garden, respectively, be authorized to give such practical instruction to the students of the agricultural and horticultural classes as will prepare them for the teachings of the class-room.

During the past year the classes in horticulture have spent a considerable portion of the time in illustrative labor under my own supervision. This has included such operations as grafting, pruning, transplanting, etc. I have been more than pleased with the enthusiasm that the students have displayed in all work that is strictly educational. This fact indicates that there is a demand for instruction along this line of manual training, and shows that no effort should be spared to make prominent all features of illustrative labor on the farm and in the gardens.

A BOTANIC GARDEN AND ARBORETUM.

A year ago the State Horticultural Society adopted the following resolution:

Resolved, That the establishment and maintenance at the Ohio State University of a well-equipped garden and arboretum, for the illustration of systematic and economic botany and forestry, would be of great benefit to the people of the state, especially to teachers of our public schools, to farmers, nurserymen, fruit-growers, florists, and to medical students. In such establishment the Ohio State Horticultural Society will take the deepest interest, and it desires respectfully, but earnestly, to commend the subject to the trustees of the State University and to the general assembly.

I trust that you will again urge the trustees to ask the legislature for an appropriation of $5,000, for the purpose set forth in the above resolution.

Next year Ohio is to celebrate her centennial. There is a general desire on the part of the citizens of the state to make the year a memorable one. What more useful, appropriate, or lasting memorial could be named than the establishment of an arboretum and botanic garden? It is needed to test the climatic adaptations and economic value of plants of all kinds. It is needed for the illustration and encouragement of practical forestry. It would subserve many other ends of usefulness. I beg for this subject your earnest consideration.

SPECIAL NEEDS OF THE DEPARTMENT.

The following is a summary of the special needs of the department:

1.	For museum	$500 00
2.	For laboratory equipment	150 00
3.	Plants for green-house	150 00
4.	Models, maps and charts for class-room	100 00
5.	Horticultural equipment—tools for student labor in garden	100 00
	Total	$1,000 00

Very respectfully,

WILLIAM R. LAZENBY,
Professor of Botany and Horticulture.

Ohio State University, October 14, 1887.

AGRICULTURE.

President W. H. Scott:

DEAR SIR: There are three classes under the charge of the professor of agriculture, each having a special line of work. By the first class, which numbers five, soils are examined, their origin, geological relations, composition, classification and special adaptations are studied. Also fertilizers, drainage, and other means of improvement, grasses, grain, crops, tillage, farm machinery, fences, farm buildings, etc. The time of the second class, numbering seven, is devoted to the study of the natural history, description, and special adaptations of the varieties of domestic animals, horse training, wool-growing, dairying, stock breeding, feeding and management. The third class, numbering eight, is occupied with the study of animal diseases, their nature, causes, symptoms, and especially the means for their prevention. Also remedial agents, principles of treament, veterinary obstetrics, and surgical operations.

Agricultural instruction is arranged to accommodate as many as possible of the young farmers of the state. Two courses of study are offered—one a college course, requiring four years, and leading to a degree; this includes not only practical instruction, but embraces all the sciences which have relation with agriculture, such as geology, chemistry, botany, horticulture, comparative anatomy, physiology, veterinary medicine, physics, mechanics, geometery, surveying, etc. Such branches as may be expected to prepare the young farmer for the duties of citizenship are also included—history, rhetoric, constitutional law, political economy, etc. The other, or short agricultural course, occupies two years, and includes, in addition to practical agriculture, so much of chemistry, botany, horticulture, animal physiology and veterinary medicine as can be acquired in the time. The short course is adapted to the wants of students who are limited in time or means; it enables them to judge what studies are likely to be most useful, and to make a good beginning in the work of self-education.

Agricultural students, with all others at the University, have the benefit of literary or scientific training in the meetings of societies. The Kirtland society, which is composed chiefly of agricultural and veterinary students, meets weekly for addresses, essays, and discussions by the members.

The University farm of three hundred and thirty acres supplies labor with compensation to many students who desire in this way to defray a part of their expenses. It also affords the means of illustrating in a practical manner much of the instruction given.

To extend more rapidly the benefits of scientific training among the young farmers of the state, the trustees of the University have offered to every county agricultural society in Ohio the privilage of sending one student to the short agricultural course, to whom all college charges will be remitted.

Yours respectfully,

N. S. TOWNSHEND.

ZOOLOGY AND COMPARATIVE ANATOMY.

Wm. H. Scott, President:

DEAR SIR: I have the honor to submit to you my thirteenth annual report.

The enrollment in my various classes for the year recently closed was as follows: Sophomore physiology, thirty-three; sophomore anatomy, seventeen; junior histology, ten; senior microscopy (pharmacy course), three; the total enrollment was sixty-three, of whom twenty-one were enrolled in more than one class.

The year just closed was the first in which, in accordance with previous action of the faculty, laboratory work in anatomy and physiology was made part of the required work of students (except engineers) attending the lectures upon these subjects. As predicted in my last report, the appliances for this work were altogether inadequate. The number of students of whom this work is required is larger this term than it was last year, and I enter upon the work of the year, knowing that it cannot be performed in the manner that the interests of the students demand. I regret very deeply that the failure of the legislature to respond to the request of the trustees, in behalf of this department makes this condition of things possible, and I trust that their request will be repeated this winter with even greater urgency.

Let me recall your attention to the fact that I am not now asking for costly pieces of apparatus suited for original research (much as I desire some things of the sort for the use of advanced students in my laboratory), but for a large number of simpler appliances for elementary work in such extensive duplicate, that sections of from eight to twelve students may make good use of their time, instead of waiting upon each other (as is now frequently necessary) for the use of single preparations or pieces of apparatus; a procedure which causes serious waste of time, a decrease of interest in the work, and, on the part of earnest students, a diminution of respect for it. I am sure that if the trustees of the university fully understand the urgent need of this department they will do their utmost to provide for it.

All of which is respectfully submitted.

ALBERT H. TUTTLE, *Professor.*

Ohio State University, October 1, 1887.

CIVIL ENGINEERING.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following report of the department of civil engineering, for the year ending June, 1887.

The number of students enrolled in the various classes during the year was as follows:

Fall Term, 1886.

Seniors, civil engineering	7
" bridge designing	4
Juniors, topographical surveying	7
Sophomores, land surveying	14
Short agricultural course, field measurements	17

Winter Term, 1887.

Seniors, shades, shadows and perspective	4
" plans and specifications	5
Seniors and juniors, stereotomy	9
Sophomores, lettering and platting	10

Spring Term, 1887.

Seniors, sanitary engineering	3
" plans and specifications	3
Juniors, bridge strains	7
Sophomores, railroad surveying	18
Total enrollment	103
Total number of students (counting none more than once)	44
Students in short agricultural course	17
" mining engineering course	3
" civil engineering "	24
Total	44

At the end of the year 3 students received the degree of civil engineer.

The students have been very faithful and successful in the work of the past year.

During the spring term the class in railroad surveying was employed by the C., L. & N. W. Railway Co., to make a preliminary survey and estimate for a road several miles in length, around the northern and eastern part of the city. The work was rapidly and well done, to the entire satisfaction of the company.

The equipment of the department has been increased by the addition of several small surveying instruments, photographs, blue prints, drawings, etc., and a few models made by students. The transits were sent to the makers for a thorough cleaning and repairing. One of them was filled with stadia wires, so that students can now be trained in this method for surveying. A stadia rod has been made by students at the University.

Our outfit for all ordinary surveying is now fairly complete, but for the better class of work we have no instrument that will measure angles with sufficient accuracy. For this purpose we need very much a good transit or transit-theodolite. Such an one as will answer the needs of the department can be had for about $650, and I hope that an appropriation for that purpose can be made.

We have tape measures that are accurate enough to use with such an instrument.

The want of models in stereotomy, and also of roof and bridge trusses is more and more felt, and I hope that there will be at least $300 set aside for this purchase.

Very respectfully submitted.

C. N. Brown,
Assistant Professor.

Ohio State University, October 4, 1887.

MECHANICAL ENGINEERING.

President W. H. Scott:

DEAR SIR: I respectfully present the following report for the department of mechanical engineering for the year ending June, 1887.

First Term—Students in analytical mechanics, 13. In mechanism, 5. In thermodynamics, 4. In mechanical laboratory, 13.

Second Term—Students in technical drawing, 6. In prime movers, 4. In mechanism, 4. In mechanical laboratory, 14.

Third Term—Students in strength of materials, 10. In mechanism, 4. In designing and drawing, 4. In millwork, 2. In technical drawing, 2. In mechanical laboratory, 10.

The new appliances procured two years ago have proved to be of excellent service to the department, as already considerable advanced work has been accomplished which was not possible before.

One of our present needs is a better testing machine, the present one having been twice broken in overloading it while attempting to finish testing some ordinary test pieces of stone and iron. Also, it has very often been found desirable to test specimens that the machine would not take in. A machine of greater capacity in both these respects is needed, and I would be glad of means for relieving this need. To procure the improved facilities would cost about $800.

Very respectfully yours,

S. W. ROBINSON.

Ohio State University, October 4, 1887.

MINING AND METALLURGY.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report of the work in the department of mining and metallurgy for the year ending June 22, 1887.

The number of students in the various classes under my instruction was as follows:

Fall Term—metallurgy, 8; plans and specifications, 3.

Winter Term—metallurgy, 5; mining engineering, 4; assaying, 8; mineralogy, 57; plans and specifications, 2.

Spring Term—ore-dressing, 5; metallurgy, 3; plans and thesis, 2.

The whole number of different students in the department during the year was sixty-nine.

There were two graduates in mining engineering.

The chemical work conducted in the laboratory of this department comprised numerous analyses of limestones, oil-wells, drillings and coals for the Ohio State Geological Survey. These have been partly published in the special reports of the state geologist, and will appear in the next volume (Vol. VI), of the state reports.

An unusually large number of samples of fertilizers has been analyzed, and the results published and distributed over this state in the regular crop reports of the State Board of Agriculture.

The demand for these reports on the part of the farmers is so great as to indicate a hearty appreciation of the value of the work.

This year the tabular statements of results of analysis have been supplemented by short articles by Professor Weber and myself on the use and application of fertilizers.

I would respectfully urge the growing importance of providing increased facilities in the mining department, representing as it does the second largest industry of the state. At a recent meeting of the Ohio Institute ot Mining Engineers in Ironton, this subject was discussed at some length, and a committee of three members appointed to visit the University, and report to the institute the needs of the department, and what means could be adopted to assist the University in supplying them. I hope this may lead to a growing interest on the part of the mining portions of the state in the development of the department.

Respectfully submitted.

N. W. Lord,
Professor of Mining and Metallurgy.

FREEHAND AND MECHANICAL DRAWING.

W. H. Scott, President:

Dear Sir: I respectfully submit the following report of the department of drawing, for the year ending June, 1887.

The number of students enrolled in the department, deducting those twice counted, was 120, distributed as follows:

First Term—Freehand drawing	23	
Projection "	24	
Special "	1	
		48
Second Term—Freehand drawing	18	
Descriptive geometry	19	
		37
Third Term—Freehand drawing	19	
Shades, shadows and perspective	19	
Special drawing	2	
		40
		125

Owing to a recent change in the requirements of the different courses the number of students in the freehand drawing class was reduced.

All students of freshman standing were required to take freehand drawing, but now only those of sophomore standing in the bachelor of science course, it being an elective study in the sophomore year of the bachelor of arts and bachelor of philosophy courses.

Just here I would venture to offer the suggestion that freehand drawing be given a place in the freshman year of the engineering courses.

It is to be regretted that none of the needs mentioned in my last report have been received. This is unfortunate from the fact that what was there requested was absolutely necessary.

I call your attention to the present needs of the department, which I hope will be supplied in the near future.

1. A set of J. Schrœder's descriptive geometry models to facilitate the work in projection drawing and descriptive geometry.

The cost of a set is about $85.

2. To facilitate the work in freehand drawing, a few copies in finished work should be provided, illustrating figure, animal, flower, landscape, marine and ornament drawing. As the students advance they develop desires for a special style of work, and these the department should be able to meet. $25 or $30 would probably answer.

3. In the work of shading from models and plaster casts, the direction of light is an important factor in securing the best effects, and should be controlled; but with the present arrangement of windows this is impossible. They should be provided with shades of a neutral color which roll from the bottom upwards.

4. In order that the department be able to make a showing of its work, a small appropriation might be requested to frame and hang a portion of the students' work upon the walls of the room. It would add very much to the attractiveness of the room, and indicate the aim of the department.

Very respectfully,

J. N. Bradford.

Ohio State University, October 1, 1887.

VETERINARY MEDICINE.

President W. H. Scott:

Sir: Herewith I have the honor to submit to you my report for the past year. When the veterinary department was opened in the fall of 1885, the various branches of veterinary medicine could not at once be taught in the order in which they are laid down in the regular course. Some students, already advanced in other branches, entered the new department, and it was deemed advisable to allow them to take a somewhat irregular course, and to admit them to studies assigned to the senior year. So it happened that last year those branches which are assigned to the senior year, and have to be taught by me, were, with the exception of clinical instruction, and some minor branches, not given during the past year. This left me time to take a class in veterinary anatomy, a study assigned to the first, or, if the preparatory year is included, to the second year of the course. In this study I had a class of six students during the fall and winter terms, and of five in the spring term. Four horses, two mules, and one calf furnished the material for practical study of anatomy, and the majority of the members of the class diligently availed themselves of the opportunity thus offered, and did good and thorough work in the dissecting room. Besides the class in anatomy, I had a class of two students in helminthology in the fall term, and in the spring term a class of three veterinary and of two agricultural students in veterinary obstetrics, and another class of one veterinary and two other students in bacteriology (methods of bacteriological research).

The clinic, which was attended by six students in the fall and winter, and by five in the spring term, was, on the whole, much better patronized than the year before, and the number of patients presented for treatment at least double that of the preceding year. Besides that, the more advanced students had frequent opportunities to go with me to patients in my treatment at the premises of their owners.

An opportunity was also offered to the advanced students to become practically acquainted with the modern methods of bacteriological research, and of investigating the causes of infectious diseases. As veterinarian of the Ohio Agricultural Experiment Station, I conducted last fall and last winter a series of experiments for the purpose of establishing on a strictly scientific basis the identity of the microbe, which causes swine plague or so-called "hog cholera;" and every process was not only explained to the students, but also, where possible, performed under their observation, and with their assistance. This work, in particular, has borne good fruit. A senior student, Mr. Mark Francis, by this training, became enabled to undertake successfully as his thesis work an original investigation into the cause or causes of foot-rot in sheep. He not only succeeded in finding the cause, but also in demonstrating on a strictly scientific basis and beyond any doubt whatever, that a short-jointed aërobic bacillus, of great vitality, constitutes the true cause of that disease. He is the first who, to my knowledge, has found and described this bacillus, and demonstrated it to be the cause of foot-root. His thesis was read before the American Society of Microscopists at its last meeting in Pittsburgh, Penn., September 1st, and not only met with high praise from the members of the society, but also from the medical and secular press. The St. Louis Medical and Surgical Journal, which is considered as good authority on microscopy, calls Dr. Francis' thesis in an editorial in its October number: " A paper of great value on the bacterial origin of foot-rot in sheep * * * marked by a thoroughness of research, and a neatness and beauty of experimentation of the highest order."

During the last year considerable improvements have been made in the veterinary department. Particularly the study of veterinary anatomy and the clinic are now on a much better basis. The stalls in the building used as a veterinary hospital have been improved, and several instruments and other appliances have been procured. But more is necessary. The part of the building used as a hospital ought to be separated from the other part by a high partition; and an appropriation of about $100 will be needed to procure more instruments and appliances in order to be prepared for the treatment of every case that may be presented.

A new dissecting table, fully adapted to its purpose, has been ordered.

For the purchase of anatomical material, such as old or crippled horses, an appropriation of about $35 will be needed, and an appropriation of $100 for students' assistance and prosector work, the same as last year, is required.

Improvements have also been made in the course of studies as laid down in the catalogue. The general complaint of nearly all candidates for admission has been: First, that our requirements for admission are too high, and second, that our course included too many studies which have no direct bearing upon veterinary medicine. The whole course has been improved, and the requirements for admission, although on the whole not lowered, have been made so that they can be met by a much larger number of applicants. If we would lower these requirements, or accept every applicant, and shorten our course, we might get a large number of students; but as it cannot be the aim of the Ohio State University to flood the state with a large number of indifferently educated and poorly qualified veterinarians, and as a thorough veterinary education cannot be obtained in less than three or four years, it is neither advisable to lower the requirements for admission, nor to shorten the course. I take it to be our object to give thorough instruction, and to send out veterinarians who shall fully deserve the confidence of the people. This cannot be done in a shorter time than is required by our course; neither can such studies as chemistry, botany, histology, bacteriology, laws of hygiene, microscopy, etc, be dispensed with in the present age. The time when a veterinarian could get along without them, fortunately, belongs to the past. But as some other institutions graduate a young man after an attendance of only two "sessions," and as in the State of Ohio there is no law regulating the practice of veterinary medicine and surgery, we must, for a while at least, be satisfied with quality rather than quantity, and cannot expect a large number of students.

Very respectfully submitted.

H. J. Detmers,
Professor of Veterinary Surgery.

Ohio State University, October, 1887.

AGRICULTURAL CHEMISTRY.

W. H. Scott, President:

Sir: The undersigned respectfully submits the following report of the department of agricultural chemistry, for the year ending June 22, 1887.

The number of students enrolled in the classes of agricultural chemistry during the year was as follows:

First year agricultural chemistry—	
Fall term	19
Winter term	13
Spring term	8
Sophomore agricultural chemistry—	
Fall term	1
The number of students for the present term is:	
First year agricultural chemistry	17
Sophomore	8

The class work in the laboratory for the spring term was materially increased, otherwise the work of the department was essentially the same as the preceding year.

With the appropriation for this department the necessary supplies for the present year have been purchased. Very respectfully,

H. A. Weber.

Ohio State University, October 1, 1887.

PHARMACY.

President W. H. Scott:

Dear Sir: I herewith respectfully submit the second annual report of the department of pharmacy.

The number of students enrolled in this department for the year was 13, all of whom, with the exception of two, continued throughout the year. The work has progressed very satisfactorily. The three seniors, who were the first to receive the degree of Ph. G. from the University, passed a successful examination before the Ohio Board of Pharmacy and registered under the state law as pharmacists, some months before the final examination here. If it would be considered an indication of efficient training, I might also state that one junior, who had the termerity to make the attempt, was also successful before the Ohio board.

Very gratifying progress has been made in the collection of specimens for our cabinet, which is now almost complete. In this matter, we are largely indebted to the liberality of Messrs. Powers & Wightman, of Philadelphia; Messrs. Lehn & Fink, of New York city; Messrs. Park, Davis & Co., of Detroit; and Messrs. Kauffman, Lattimer & Co., of this city, all of whom have made liberal donations. Not much has been added in the way of apparatus, owing to the lack of appropriations, and of suitable quarters for their reception, had appropriations been made. I wish again to call the attention of the board to the necessity of providing suitable accommodations for this department. I think it has been satisfactorily demonstrated that the department can be made a decided success, if it may not already be so considered. In point of numbers, it certainly is not the least important of the technical departments of the University, and if it is expected to be continued with any degree of success, some provision is an absolute necessity. When it is remembered that the students in veterinary science have also one year of pharmacy, it adds still another point to the importance of proper provisions. We are at present indebted to the kindness of Prof. Weber for the use of his lecture room and laboratory, and, while he kindly affords us every facility in his power, it is greatly inadequate and at the same time causes him much annoyance and inconvenience. The present year has opened with an increased number of students and is in every way encouraging. But the matter of providing working accommodations is something which needs immediate attention. I will just say that at the present time Prof. Weber has in his classes twenty students. I have in the class of pharmacy fourteen. Next term all of these students will be required to do laboratory work. Prof. Weber's laboratory contains twenty-four desks, and the problem before us now is how to divide twenty-four desks among thirty-four students.

If I might be permitted to enumerate the wants of this department, I should say that a new building is a prime necessity. This might be detached or built as a wing to the present laboratory building, and, in my opinion, should contain a large lecture room, a large laboratory, two store rooms and a private room. These rooms and the laboratory should be fully equipped with all the latest improved apparatus. One of these rooms should be fitted out as a drug store with all the appliances thereto. With such an outfit we might be in position to meet any future demand on the department, and our chances of success would be infinitely greater. The expense of such an establishment would be comparatively small, not to exceed at the most $8,000 or $9,000, and I am fully impressed that such an expenditure is due the pharmacists of Ohio. I wish again to express the thanks of the department to Profs. Norton and Weber for numerous courtesies extended.

Trusting that you will urge upon the board the consideration of our necessity, I remain,
Yours truly,

GEORGE B. KAUFFMAN.

Ohio State University, October 31, 1887.

HISTORY AND POLITICAL SCIENCE.

William H. Scott, President:

SIR: I have the honor to submit the following report of the department of history and English language and literature, for the year ending June 22, 1887.

The number of students enrolled in the various classes in the department was as follows:

HISTORY.	1ST TERM.	2D TERM.	3D TERM.
History B (Modern European)	28	28	26
History C (Advanced investigation)	9	9	7
United States Constitutional	37	34	32
Preparatory—United States (Sec. A)	32	—	—
" " (Sec. B)	—	24	—
" General History (Sec. A)	28	—	—
" " (Sec. B)	—	—	30
Totals	134	95	95
ENGLISH.			
English C (Advanced literature)	11	11	11
English B (Anglo-Saxon and literature)	16	14	14
English A (Advanced rhetoric)	83	74	70
Preparatory—Rhetoric (Sec. A)	—	35	—
" " (Sec. B)	—	—	19
Totals	110	134	114
POLITICAL ECONOMY	28	28	27
Total enrollment in all classes in the department	272	257	236

Counting the members in each class but once for the year (not by terms), the enrollment in the history classes was 188, as against 122 in the year previous; in the classes in English, 164, as against 104 the previous year; and in Political Economy, 29, as against 18. In addition to the foregoing work, rhetorical exercises, consisting of essays and written critiques thereon, were maintained, requiring the presence of juniors and sophomores one hour each per week.

While it was expected that the adoption of the remodeled courses in June, 1886, would increase the enrollment in this department, so great an increase would not have resulted except for the fact that the year just closed was a transition year between the old and the new curriculum, and of necessity members of two college classes were, for the one year, enrolled in the same classes in history, and in one of the classes in English. This "doubling up" was especially noticeable in United States constitutional history and in English A. The new courses now being fully established, the enrollment during the coming year will better indicate the normal size of the classes in the department.

The interest of the students in the work was better sustained, and the results were more satisfactory than in the previous year. The course known as History C is a course for advanced students, offered for the first time last year. As stated in my last report, it is "designed for original study and research in the institutional and financial history of the United States." It is the German *seminar*, adapted to our institution and to our materials for research. While several of the larger American colleges have used these methods for some years, this is, so far as I know, its first trial on Ohio soil. It is a gratifying fact that, though it is purely an elective course, several students entered upon it during this, its first year, and presented results that will compare favorably with the products of older and better equipped institutions.

The addition during the past year of many valuable works and documents on American history has fully doubled the usefulness of the library of the department in that special field. In European history we seriously need many additions to the library, while our available works on political science are hardly worthy of mention. The shelves in the library contain very few of the books that should be accessible to every student of political economy in these times when economic questions are of such paramount importance. Fortunately I have been able to place a few books from my own working library in the hands of students, thus helping to supply some of the most glaring deficiencies of the University library. This has, however, proved a poor expedient, since few students are willing to avail themselves of a loan from a private library. Twenty-five or even fifty dollars a year for the purchase of books in two such extensive fields as history and political science is, as everyone knows, entirely inadequate. I would, therefore, respectfully ask, through you, that an appropriation of one hundred dollars from the general fund be made for the present year for the purchase of books upon economic subjects, in addition to the department's *pro rata* allowance from the annual library fund.

The recent division of the work of this department and the creation of the department of English language and literature makes it unnecessary and improper for me to speak of the present prosperity or needs of the latter. In ceasing my connection with the department of English, and in wishing my colleague, Professor Welsh, the full measure of success in its future administration, I cannot refrain from testifying to the unflagging zeal with which he has labored during the past two years with me in the department as it was then constituted.

Very respectfully,

GEO. W. KNIGHT,
Professor of History and Political Science.

Ohio State University, October 1, 1887.

ENGLISH LANGUAGE AND LITERATURE.

President W. H. Scott:

As you are aware, English C requires each student to study, in its entirety, one or more of the acknowledged masterpieces of each representative writer—a requirement that entails the reading of at least as many productions per term as there may be members in the class. Some of the necessary copies, of course, can be supplied from the public libraries, but most of them must be bought. This involves an expense which very few of our students can afford.

Permit me, therefore, to express the hope that the honorable board of trustees may be pleased to authorize the purchase of from twelve to fifteen duplicate copies of the masterpieces for the year's work.

Careful investigation of the subject this summer enables me to say that the desired copies can be obtained at an average price of fifteen cents. The aggregate expenditure for this important and permanent gain to the facilities of the University would thus be about one hundred and thirty-five dollars.

I may add that since the introduction of the seminary plan, a few years ago, some of the eastern colleges, including Yale, have made similar purchases, and advertise the fact as a special inducement to such as are seeking literary culture.

Very respectfully,

A. H. WELSH.

FRENCH LANGUAGE AND LITERATURE.

W. H. Scott, President:

SIR: The annual report of the department of French is herewith respecfully submitted:

The enrollment in the several classes for the year was:

	1ST TERM.	2D TERM.	3D TERM.
Course A—Sophomore French	8	8	9
Course B—Sophomore French	17	17	16
Freshman French	58	44	37

In the Freshman class the method followed was mainly that of the previous year. The first term the construction of the language was studied by means of a grammar in the language itself. In using such a grammar the student learns to read the language in the beginning of his work. The second term, reading was formally begun, and this, with the study of the grammar, was also the work of the third term.

The report of last year gave the change made in the sophomore year. This change divided the work of that year into two courses, course A having in time three hours per week through the year, intended for the B. Ph. course; and course B having two hours per week through the year, intended for the B. Sc., C. E. and M. E. courses. The work in course A was the critical reading of texts from the classical and modern periods of French literature; composition was studied in the fall term, and during the second and third terms a lecture was given each week on the literature. These lectures were in the French, and the students were required to take their notes in French; when, at the end of the year, the note-books were examined the result was gratifying.

The work in course B was that indicated in the last report: The reading of French prose, chiefly the prose of science, with the study of composition and of the literature. Lectures on the literature were also given in this course, but they were in English. Though the difference between these two courses will grow, rather than decrease, yet I am still of the opinion expressed in my report last year, that the work in course B should not be wholly in scientific prose, as this will not fit the student to read with ease the French of general literature.

Very respectfully,

ALICE K. WILLIAMS,
Associate Professor of French.

GERMAN LANGUAGE AND LITERATURE.

President Wm. H. Scott:

DEAR SIR: I have the honor of submitting the report of the department of German for the academic year ending June 22, 1887.

The following was the enrollment:

First Term—First preparatory	60	Two sections.
" Second "	20	
Second Term—First preparatory	46	Two sections.
" Second "	19	
Third Term—First preparatory	39	Two sections.
" Second "	14	

The work in this department was carried on in the same way as the preceding year; but important additions to the course in German had to be made. These additions, which go into force this year, are specified in the scheme of studies. They consist in greater facilities given to the students to elect German in the arts and philosophy courses; further, in making the study of German compulsory in the science course; and in establishing a one year class in German literature, and another in scientific German. In consequence of these additions, the number of students has been increased very considerably, and it will be necessary in the future to divide the classes into still more sections.

Preparatory pupils and college students are still taught together in the same classes; an arrangement which does not tend to produce the best results, it being impossible to adapt one line of work to two different grades of students, between which there is a difference in age of from four to six years. It will be more than desirable to remove this incongruity, and to form a special beginners' class for college students, as the present arrangement overburdens the preparatory pupils, and gives an insufficient amount of work to college-men.

There is one difficulty which ought to be met before very long, if the greatest efficiency is to be secured for the higher instruction in this department. The facilities which the library affords for advanced work in German are altogether inadequate. If any higher work is to be done, either in scientific German or in literature, it will be necessary to purchase a number of books of reference, and I would respectfully ask for a moderate sum, which would meet the immediate wants of the department.

Very respectfully,

ERNST A. EGGERS.

Ohio State University, October, 1887.

LATIN LANGUAGE AND LITERATURE.

President W. H. Scott:

DEAR SIR: The following report of the department of Latin for the year ending June 22, 1887, is respectfully submitted:

The students registered in this department during the year were classified as: First preparatory, twenty-five; second preparatory, thirty-two; freshmen, twenty-five; sophomores, eleven; juniors, fourteen; total enrollment, one hundred and seven.

The first preparatory class was assigned to Mr. McCoard for instruction; the other classes were taught by myself.

The rate of attendance was high, and the results of the year's study were gratifying to the instructors, to whom it is a constant source of encouragement that the standard of scholarship is steadily rising, and that successive classes come to the later years of the course with better and better training.

The greatest deficiency in the material equipment of the department is the lack of a collection of maps, plans, models, photographs of ancient ruins, and works of art, etc., forms of illustration which appeal strongly to the mind through the sense of sight. This phase of classical instruction requires, and, in my opinion, will amply repay special emphasis. I hope that the trustees of the University will soon be able to make a liberal appropriation for the foundation of such a classical museum, which would be of equal value to the departments of Latin and Greek, and thus benefit a large number of students.

Very respectfully,

SAMUEL C. DERBY,
Professor of Latin.

Ohio State University, October 1, 1887.

GREEK LANGUAGE AND LITERATURE.

President W. H. Scott:

DEAR SIR: I have the honor to submit my annual report of the work done in the department of Greek for the college year ending June 22, 1887.

The number of students enrolled in the four college classes during the year was as follows:

Senior Greek	9
Junior Greek	8
Sophomore Greek	2
Freshman Greek	9
Total	28

Out of a total of twenty-five candidates for degrees at the commencement in June, it will be seen that eight obtained the degree of bachelor of arts; a proportion that seems to show that the demand for instruction in Greek is at least not diminishing.

The interest in classic archæology would be greatly stimulated, and the work of the department in this direction much facilitated, if a small portion of the department appropriation for books could be applied to the purchase of charts, photographs, or casts illustrative of ancient life and manners.

The course, as laid down in the catalogue, was followed as closely as possible, and satisfactory results were attained in all classes.

Very respectfully,

J. R. SMITH.

MILITARY SCIENCE AND TACTICS.

W. H. Scott, President:

SIR: I have the honor to submit the following report for the year ending June 22, 1887:

At the beginning of the college year, October 16, 1886, Lieut. Blocksom, 6th U. S. cavalry, organized a battalion of four companies, to which a band was added November 11, 1886. The number of companies was reduced to two at the beginning of the third term, the number of cadets having been reduced from one hundred and fifty-nine to one hundred and twenty-one. On May 7th, a competitive drill was had to decide which company should represent the University at a prize drill to take place at Wooster, Ohio. Company A was selected. It was found impossible to arrange this match, and Company A, by permission of the faculty, took part in the competitive drill at Findlay, Ohio, on the 17th of June, winning the second prize.

The cadets were drilled in infantry tactics throughout the year. In May a detail was drilled in the manual of the piece, artillery tactics.

On the 6th of July I reported for duty as Professor of Military Science and Tactics, relieving Lieut. Blocksom. There are now two hundred and thirty-four cadets on the roster for drill. All students, except seniors and juniors, are required to drill, unless excused by the President for sufficient cause. A battalion of four companies has been organized. A band was also formed early in the term. The cadets, as a rule, manifest a commendable spirit and interest in their work, making the outlook for the coming year a promising one.

I recommend that cadets officers be given commissions and cadet non-commissioned officers warrants, signed by the President of the University and the commandant of cadets. If this recommendation is approved, the commissions and warrants will be certificates of service in the battalion and of proficiency in drill. They should be forfeited for inefficiency, neglect of duty, indifference or any misconduct which, in the opinion of the commandant, renders the officer or non-commissioned officer unworthy to hold his position in the battalion.

I renew the recommendation of Lieut. Blocksom, that action be taken to secure the erection of a building to be used as a gymnasium, armory, and drill hall.

Very respectfully,
Your obedient servant,
CHAS. E. KILBOURNE, *1st Lt. 2d Artillery,*
Prof. of Military Science and Tactics.

Ohio State University, October 16, 1887.

THE LIBRARY.

President W. H. Scott:

DEAR SIR: I have the honor to present the annual report of the library for the year ending June 22, 1887.

At that date the total number of volumes, exclusive of pamphlets, belonging to the library, was 7,708, of which 864 had been added during the year. Many of these were expensive books, so that the increase of the library in number of volumes was less than in preceding years.

Most of the books are still in good condition; a few show plain marks of much use, and a smaller number need to be rebound.

It may be justly said that the collection, though still small and inadequate, is, for its size, unusually well selected and serviceable. The volumes that have been purchased, were selected, in almost every instance, by those thoroughly familiar with the subject and constrained to choose the best, because unable to purchase more than a very few of the many works published.

Noteworthy additions were made in the subject of engineering and American history; in the former a complete set of the transactions of the American Society of Civil Engineers was secured, and in the latter several valuable sets were completed and many important works requisite for original research in American political and economical history were placed upon the shelves.

In English literature a considerable number of volumes by American writers was added. Some of these served to complete partial sets, others were chosen as the best specimens of the productions of their authors.

PERIODICALS.

The number of periodicals received at the library was nearly the same as the previous year, and, with very few exceptions, the list remained the same. I have to confess that I have been unable thus far to make a satisfactory arrangement for procuring them.

We are still receiving, free of cost, *City and Country*, *American Manufacturer*, *American Engineer*, *Columbus Record*, *Watchman*, *Christian Register*, *Patent Office Gazette*, *Farm and Fireside*.

I venture to call attention again to the importance of procuring perfect sets of several periodicals indispensable for advanced work in the various departments of science. Such publications grow yearly more scarce and costly.

It is a matter for regret that the growth of the library in this and other directions will be much checked for the current year by the reduction of the usual appropriation to one thousand dollars.

At least five times that sum should be expended annually for the next five years in order to lay a proper foundation for a first class college library.

If the first requisite of a library is books, the second is certainly a good librarian. I should fail in my duty if I did not represent to you the urgent need of increasing the salary of the assistant librarian to a sum sufficient to procure the service of a well-trained librarian for the entire day. I can see many ways in which the library could be made more helpful, better secured from loss of books, and more perfect in organization, if put under the charge of a professional librarian.

During the year just ended, the library was fortunate in having successively the services of two recent graduates of the University, Miss Clara Fisher and Miss Anna N. Scott; both gave it their entire attention and found themselves fully employed. Another reason why the library should be placed under the immediate oversight and have the presence of an officer of the University, is the fact that during several hours of the day it has become a study room for a large number of the younger students, so that the library is virtually a school room as well as a reading room. It is not easy to secure the quiet most conducive to the proper use of a library under such circumstances, especially when the room is in charge of a student.

Gifts of books have been received from the United States Government, the State of Michigan, Hon. John Sherman, Hon. J. H. Outhwaite, Gen. J. W. Keifer, The Royal Society of Canada, the Canadian Government, Marietta College, Institute of Mining Engineers, the State of Ohio, the Columbus Horticultural Society, and several members of the faculty of the University.

Respectfully submitted,
S. C. Derby, *Librarian.*

Ohio State University, October 1, 1887.

THE UNIVERSITY GROUNDS.

President W. H. Scott:

Dear Sir: During the past college year, in addition to my regular work as the head of the department of botany and horticulture, I have performed the duties of superintendent of the grounds.

This includes the care and keeping of something like eighty acres of the University estate, besides the planning and execution of such improvements as the appropriation for the "care of grounds" will admit. With the means at my disposal no improvements of marked importance could be made during the year.

The following are among the slight changes for the better that have been effected:

1. The grass upon a large portion of the lawn, lying directly in front of the main building, was completely destroyed by the larva of the May-beetle a year ago the past summer. In early spring this was carefully re-seeded, thoroughly top-dressed, and is now in a fairly good condition despite the severe drouth of the past season.

2. About seventy-five ornamental and shade trees, embracing twenty-five different species, were planted around the three dwelling-houses on the campus, now occupied by Professors Thomas, Knight and Tuttle. The choice of variety, and the positions in which the trees were planted, were left mainly to the occupants of the respective houses. These trees were planted with great care, and all of them made a fine start. The severe and long protracted drouth checked the growth and caused the death of a small percentage. These will be replaced next spring.

3. The unsightly hot-beds and cold-frames which have occupied the slope just south of horticultural hall, where they served as necessary adjuncts to the greenhouse, have been replaced by a cheap propagating house. Although this is by no means as good or substantial a structure as could be desired, it is a decided improvement and will add greatly to the means of illustrating applied botany and practical horticulture. It also affords much-needed facilities for experimental work in horticulture, and will enable the department to carry a larger stock of flowering and foliage plants for ornamenting the campus.

Beside the above the roads and walks have been kept in fairly good order, and several minor improvements have been made.

It may not be improper to state that the superintendent is obliged to give personal attention to a great variety of work. The whole campus, with its lawns, trees and shrubs, walks and drives, the brook, lake and spring, must be constantly looked after. The work is never done. Every day brings its care and responsibilities.

It is only fair to say that year by year the grounds have been constantly improving. The changes that have gradually taken place are not always fully realized by those who have witnessed them. Students who were here five or six years ago, and now return as visitors, appreciate what has been done, and the orderly appearance of the grounds elicits words of commendation.

ADVANTAGES OF BEAUTIFUL SURROUNDINGS.

Few things are of greater value to a college or University than a beautiful and attractive campus. If the surroundings be harsh and unattractive, the buildings uninviting, the grounds devoid of interest and beauty, the institution cannot fulfill its true mission.

One of the most potent factors in the real success of a college or university, is to be found in the affectionate regard of its alumni and students. This sentiment is not developed alone by the contact of student and professor in the class-room. It is more likely to be stimulated by beautiful and attractive surroundings. Attractive buildings, beautiful grounds, fine landscape effects, memorials, etc., everything which quickens the sense of beauty, excites self-respect, has not only an educating value for the student, but is developing a strong bond of attachment for the place. It is this feeling which must be shared by trustees, professors, and students, before a college or university can attain a full measure of success.

NEEDED IMPROVEMENTS.

The following are among the most urgent needs. They have been mentioned before, but must be repeated until they no longer exist.

1. A brick walk from the main building to horticultural hall.
2. A number of street lamps along the principal avenue leading from High street to the main building, and from the latter to the dormitory.
3. Better-kept lawns. This can only be attained by the use of a horse lawn mower.
4. The planting in groups, at suitable points on the campus, different species and varieties of trees of the same family, the same to constitute the beginning of an extensive arboretum.
5. The planting for illustrative purposes and landscape effect, of a collection of the finest foreign and native shrubs—both deciduous and evergreen.
6. The planting of a collection of our hardy herbaceous perennials for illustration and ornament.
7. The labeling with both common and scientific name of at least one specimen of each variety of tree and shrub on the campus.

RECOMMENDATIONS.

I repeat the suggestions already made in previous reports regarding the care of the athletic grounds.

Inasmuch as the University has no gymnasium, it is not unreasonable to ask that some encouragement be given to field sports. Means for physical development should be found side by side with those for intellectual development. In no other way can a full measure of health be secured and preserved.

I again ask that an appropriation, sufficient to keep the base and foot ball grounds and tennis courts in good order, be placed at the disposal of the superintendent of grounds. Two hundred and fifty dollars, judiciously expended, would place and keep these grounds in excellent order throughout the college year. If kept in perfect order they would be more generally used—to the signal advantage of the great body of our students.

This is a very modest request for the interests of physical culture. I hope the University may do more; it certainly should do no less.

A WORD OF COMPLAINT.

During the past two or three years the appearance of the grounds has been seriously marred by the thoughtless acts of a few careless persons. We have been greatly annoyed by stock running at large, or not being properly secured. The lawns have been greatly disfigured by needless foot-paths, or by means taken to prevent them; shrubbery has been broken, and flowering plants more or less injured. Students have committed, and are committing, some of these offenses, but the principal aggressors are outsiders.

While the actual injury is slight, the annoyance and detraction from the generally good appearance of the grounds is very considerable.

It would probably be next to impossible to put a stop to all of these offenses, and leave the grounds as free for public use as is desirable. Yet, with proper effort in the right direction, I believe a large share of this petty injury to University property could be stopped.

ACKNOWLEDGMENTS.

Mr. James Kelley continues faithful in the discharge of his duties, and Mr. C. A. Roth has labored zealously for the adornment of the campus.

REQUISITE APPROPRIATION.

To keep the grounds in respectable order, and carry out the most urgently needed improvements, will require an appropriation of not less than $2,000.

Respectfully submitted.

WILLIAM R. LAZENBY,
Superintendent of Grounds.

November 15, 1881.

FARM DEPARTMENT.

Farm Committee of the Board of Trustees, Ohio State University:

SIRS: I have the honor to submit herewith my report of the operations and condition of the farm department for the year ending October 31, 1887.

As has been the custom, the financial statements first occupy the attention. Statement "A" gives, in a condensed form, an inventory of the live stock, implements and produce on hand November 1, 1886, and at the close of the year, October 31, 1887, together with amounts purchased, produced, consumed, and sold during the year.

The cash receipts and disbursements for the year are exhibited in statement "B," as made up from the monthly financial statements, submitted at the close of each month to the Board of Trustees, and verified by the books of the department and the vouchers for the expenditures, all of which are herewith submitted for your inspection and approval.

There are outstanding against the department bills to the amount of $189.85; and there is due the department from various sources the sum of $1,011.97, all of which is believed to be good.

A short resume of the work done on the farm follows, together with an account of some of the experiment work and most urgent needs of the department.

Very respectfully,

W. S. DEVOL,
Superintendent of Farm.

November 1, 1887.

STATEMENT A.

Items.	On hand Nov 1, 1886.		Bought.		Produced.		Consumed.		Sold.		On hand Oct. 31, 1887.	
	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.	Number or amount.	Value.
Horses	9	$1,190 00	1	$175 00	....	....	....	....	1	$25 00	9	$1,340 00
Cattle	47	4,900 00	1	40 00	19	$500 00	4	$35 00	12	264 10	50	5,400 00
Hogs	54	400 00	8	47 00	34	825 65	....	....	32	298 65	59	425 00
Implements	....	3,202 20	....	358 76	....	....	....	....	....	....	....	3,627 00
Corn	2,392 bu.	700 00	114¾ bu.	57 48	1,460 bu.	600 00	2,600 bu.	842 88	44 bu.	15 00	1,240 bu.	514 60
Wheat	....	....	2 bu.	2 00	974 bu.	818 26	46 bu.	34 50	926 bu.	778 76	....	....
Oats	252 bu.	63 00	79¼ bu.	34 70	120 bu.	30 00	441¼ bu.	125 20	6 bu.	3 80	10 bu.	2 50
Beets	50 tons.	200 00	....	....	35 tons.	200 00	50 tons.	200 00	1 ton.	8 00	34 tons.	191 00
Hay	70 "	700 00	27 tons.	350 11	65 "	780 00	122 "	1,230 11	2⅛ tons.	28 31	50 "	600 00
Fodder	1,277 shk.	255 40	....	....	1,165 shk.	223 00	1,277 shk.	255 40	....	....	1,165 shk.	228 00
Straw	38 tons.	152 00	....	....	45 tons.	180 00	35 tons.	....	9⅛ tons.	87 39	35⅝ tons.	142 67
Milk	....	....	....	....	127,956 lbs.	3,127 75	10,364 lbs.	264 12	117,592 lbs.	2,863 63	....	....
Labor	....	....	....	....	....	....	....	2,381 25	....	235 30	....	....
Lumber	....	....	9,025 ft.	173 54	70,898 ft.	807 15	2,500 feet.	34 65	33,898 ft.	437 15	43,525 ft.	980 69
Cord wood	....	....	....	....	110 cords.	110 88	....	....	60 cords.	60 88	50 cords.	50 00

STATEMENT B.

RECEIPTS.

From H. A. Weber, cash on hand Nov. 1, 1886	$42 17	
" sale of milk	2,863 63	
" " general farm produce	455 24	
" " thoroughbred cattle	122 75	
" " other cattle	141 35	
" " horses	25 00	
" " swine	298 65	
" bull service	39 00	
" boar "	4 00	
" labor and hauling	235 30	
" pasture	24 50	
" sale lumber and wood	514 37	
" miscellaneous sales	28 53	
" house rent	80 00	
" note of W. S. Devol	658 99	
		$5,488 48

DISBURSEMENTS.

For labor	$3,381 25	
" farm implements, tools, etc	330 98	
" dairy utensils	27 88	
" repairing, shoeing, etc	158 88	
" printing, stationery and postage	36 74	
" dairy cows	40 00	
" horses	175 00	
" swine	47 00	
" grinding	34 76	
" feeding stuffs	602 78	
" freight	6 76	
" seeds	48 81	
" sawing lumber	506 50	
" advertising	50 54	
" miscellaneous items	85 60	
		$5,488 48

IMPROVEMENTS.

A sufficiently full account of the general farm operations in the raising of the crops for the year is given in the report upon experiment work and in Statement A. In addition to the work there reported, quite a little attention has been given to permanent improvements.

TREES PLANTED.

Early in the spring, as soon as the weather would admit, trees were set along High street and Woodward avenue where those previously set had died or been broken down. Forty-two American Elms (*Ulmus Americana*) were required to fill vacancies. These were heavily mulched, and during the protracted dry weather of the summer given two copious waterings, and every attention was given to cause them to live and grow; but the drought was too severe, and eleven of them died. These have been replaced with new ones this fall.

DITCHING.

The course of the brook, known as Neil's Run, was straightened in the east pasture near the campus. It was rapidly washing away the high embankment on the south side, the narrow path along which the cows passed being nearly washed down.

In straightening this a cut of ten rods was made at a cost of $55.00. The fence separating the pasture from the field used by the Experiment Station was moved to the south, taking about half an acre of unused ground into the pasture. The old creek-bed was subsequently filled from the south bank, grading it sufficiently for seeding to pasture grasses. Labor to the amount of $40.00 was expended upon this.

The old rail fence between the campus and this part of the pasture was removed, and a new wire fence built, the course being changed so as to throw an acre of the pasture into the campus. The iron spring, thus taken into the campus, was cleaned out and an overflow dug for it. The main of the underdrain for the campus east of the horticultural hall opened into the part of the pasture taken into the campus. This was continued to the creek, eight-inch sewer-pipe being used, and the joints cemented.

The underdrain through the southwest field was found to be choked up with roots from the trees and shrubs along the south line fence, and 35 rods of this had to be taken up, cleaned and relaid. That part near the river had been laid with 8-inch sewerpipe and cemented on top. In removing these many of the pieces were unavoidably broken. In order to effectually exclude the roots from the drain, the joints of the sewer-pipe were thoroughly cemented as it was relaid. The water is now carried off rapidly and well.

CLEARING.

The clearing of the island was prosecuted during the winter and spring, nine acres being cleared. The timber was very heavy and difficult to remove, and only two acres of this were ready for cultivation this season; from the two acres an excellent crop of corn was obtained. The expense of clearing this ground was greater than was anticipated, costing forty dollars an acre. But in the process of clearing 110 cords of wood were obtained, worth one dollar a cord, and about thirty cords more can be easily cut from the trees now down and off the field. From the heavy timber 70,000 feet of lumber was sawed, at an expense of $530.00. Nearly one-half of this has been sold, for which $437.15 was obtained; that yet on hand is worth $10.00 per thousand feet.

A large part of this can be utilized for flooring in the stables and barns and in repairing buildings and fences.

FENCING.

The south line fence west of the dormitories was removed—a light task, as many of the posts and the ends of most of the boards were rotted off—with the intention of replacing it at once with a strong fence of all new material, and the posts and boards were purchased. But the line was not straight, and it was deemed advisable before rebuilding to have the correct location ascertained by a competent surveyor. Prof. C. N. Brown kindly consented to run the line; but owing to the difficulty in finding the proper land-marks and corner stones, and his being engaged at other work a greater part of the season, the survey is but just completed. When Woodruff avenue was opened the north line fence was moved by the contractors, and reset in sections of several panels each, and very poorly done. This will have to be reset, and has been taken down this fall. The rail fence west of the wood-lot was removed and a good post and board fence put in its stead. Repairing has been done on all other fences. Material has been purchased, and some sawed from the timber in clearing for making a portable fence of a different pattern from that used on the farm, and forty panels of it has been made.

ROADS.

The road from the campus to the barn has been resurfaced with gravel, as has a part of that leading to the river. The fill across to "the south island," washed out last winter, has been rebuilt higher than before. Several days' labor were also expended in repairing the lane through which the cows are driven to the first pasture.

BUILDINGS.

A new, strong floor has been put in the farm coal and wood-house, and a new plank floor in a part of the horse stable, and a part of the dairy barn. New eaves-troughs and spouting were put up on the tenement house, and those on the large barn and farm-house repaired.

STOCK BOUGHT.

A young horse was purchased for use in the dairy, for which $175 was paid. Two Berkshire sow pigs and one boar have been obtained at a cost of $47. It is desirable to have on the farm, for the inspection and study of students in agriculture, good specimens of all the most important breeds of our domestic animals that can be bred and handled here, and to be able to supply thoroughbred animals to those who wish to purchase them.

IMPLEMENTS.

Of farm machinery, the most important purchase has been a "Victor Manure Spreader," for which $110 was paid. This does excellent work, and is a desirable farm implement. A No. 13 "Hocking Valley Feed Cutter" has been received gratis from the Hocking Valley Manufacturing Company, of Lancaster, Ohio, and a "Strowbridge Broadcast Seeder" from the S. Freeman & Son Manufacturing Company, Racine, Wisconsin.

The old "Kemp" manure spreader was exchanged for an "Ohio Grain Drill." A large number of small tools, such as a boring-machine, hoes, axes, mattocks, etc., have been purchased, to keep on hand a supply sufficient to efficiently carry on the general farm work.

DAIRY.

None of the thoroughbred young cattle have been sold. There are now on the farm six Jersey heifers, two Jersey bull calves, and one Devon heifer calf, all less than one year old, they having been retained with the view of forming a large herd of thoroughbreds. One registered Jersey cow, Mavina of Stattsburgh, 5238, died of hoven or bloat. Although but ten years old, she had aged very rapidly, and was too infirm for breeding, and was of little value. Another, Rosa Page, 4009, had become so infirm as to be of no value to the herd, and was sold, to be slaughtered. Others of the Jersey cows are far past their prime. One of the Devon cows, Nettie, 2148, whose calves were always deformed, was also disposed of.

Thirty-one cows have been giving milk through the year; an average of 11.3 pounds of milk each, daily, besides all that an average of four calves wanted twice a day. A statement is submitted herewith showing the quantity of milk obtained at each milking for each day in the year, and the total for each month.

LABOR.

On some of the busiest days as many as fifteen students have been at work upon the farm. Throughout the year four farm hands have been regularly employed, and during a large part of the time there were from three to five others at work. All the milking and delivering of the milk has been performed by six students.

NEEDS OF THE FARM.

There is a number of improvements very much needed upon the farm. There should be a model farm barn, such an one as the students are taught should be upon every well equipped farm. The educational interest it has to students demands it, and the necessity of some suitable quarters for conducting experimental work in stock feeding as well. The barn now on the farm is very inconvenient for general farm crops and unsuitable to dairy purposes; nor has it accommodations for storing the varieties of grains obtained by the extension of the experiment work in field crops. More and better arranged and equipped piggeries are much needed. At present proper care and attention cannot be given brood sows in the rearing of thoroughbred animals; nor to the conducting of experiments in feeding. There is an increasing interest in the subject of stock-feeding, and the University should be doing something towards the solution of some of the problems of this important branch of agriculture. An eight or a ten-horse-power farm engine would prove of great value to the farm. It is needed for threshing the varieties of grain. The power has now to be hired at a considerable expense. There is a good separator that can be used advantageously when suitable power is supplied. The tread power that is upon the farm is worse than useless, because of the injury done to the horses. There are also good and valuable machines for cutting corn-fodder, hay and straw, and for grinding corn; but they are of little use to the farm so long as a good motive power is lacking.

A complete survey of the farm is much needed, giving the exact area and form of each field, and a topographical plan made, suitable for publication, with the reports upon field experiments. This would add much to the value of the published results of experiments.

A farm residence should be erected, supplied with all the improvements conducive to the greatest convenience and comfort of the farmer and his family, and the approved modern sanitary arrangements for the maintainance of health.

EXPERIMENTS.

VARIETIES OF WHEAT.

There were forty-one varieties of wheat grown in experiment plots last season on the Experiment Station grounds. The location was one very much exposed to the severe weather of last winter, and the varieties suffered very materially from this exposure. In many portions of the field there were small patches where the water was held by the clay-soil in slight depressions, and ice freezing over the wheat, remained until the plants were all killed. Where such was the case, a deduction was made from the plot; but in all cases where the destruction of the plants was only partial, the area is included in the plots. These plots were about one thirty-second of an acre in size, all but about fifteen of those toward the bottom of the list having a western exposure. The yields, size of kernel and character of straw are shown in the following table:

TABLE I—VARIETIES OF WHEAT.

Plot number.	Variety.	Yield of grain per acre.	Weight of measured bushels.	Quality of straw.	Length of straw.	Size of grain.
	Red Smooth.	*Bushels.*	*Pounds.*			
1	Early Rice	25.2	58.5	Weak	Medium	Medium.
2	Extra Early Oakley	26	63	Strong	Short	"
3	Farquahr	36.6	57.5	Medium	Medium	"
4	Finley	27	61	Strong	Short	Small.
5	French Prairie	33.5	60.8	"	Medium	Medium.
6	German Emperor	20	56	Weak	Long	"
7	Hicks	26.5	61.5	Strong	Medium	Small.
8	High grade	29.1	59	Very weak.	"	Medium.
9	McQuay	19.2	59	Strong	Short	"
10	New Monarch	36.1	58.5	Medium	Long	"
11	Patagonian Trigo	27.3	58.5	Very weak	Medium	Large
12	Poole	25.5	58.8	Strong	"	Medium.
13	Red Brazillian	28.2	59.5	"	Long	Large.
14	Red Fultz	35.2	59	Medium	Medium	Medium.
15	Red Line	31.6	59.5	Strong	Long	"
16	Rockey Mountain	23.1	61.3	"	Short	Small.
17	Witter	40.8	60	"	Long	Medium.
18	Wyandott, red	28.9	60.5	"	"	Small.
	Red Bearded.					
19	Bearded King	25.3	59.5	Very weak.	Long	Large.
20	Deitz	25.4	61	Strong	Medium	"
21	Diehl's Mediterranean	26.9	59.5	Medium	Long	"
22	Egyptian	28	60.5	Strong	Large	Medium.
23	Fulcuster	20.3	58.5	Medium	Medium	Large.
24	Hungarian	37.4	60.5	Weak	"	Medium.
25	Mediterranean	22.3	58.5	Medium	"	Large.
26	Nigger	24.6	60	Strong	"	"
27	Raub's Black Prolific	18.7	59.8	Medium	Long	Medium.
28	Silver Chaff, bearded	32.7	60	Weak	Medium	"
29	Tasmanian Red	22.1	59.8	Very weak.	"	Large.
30	Theiss	29.5	60	Weak	"	Medium.
31	Tuscan Island	31.1	59.5	Medium	"	Large.
32	Valley	34.9	59.5	Strong	"	Medium.
	White Smooth.					
33	Landreth	32	59	Strong	Long	Large.
34	Martin's Amber	21.4	61	"	"	Medium.
35	Miller's Prolific	16.5	58	"	Short	Small.
36	Royal Australian	38.8	59	Weak	Medium	Large.
37	Silver Chaff	30	59.5	Medium	Long	Medium.
38	Surprise	32.7	58.5	Strong	Medium	"
	White Bearded.					
39	Democrat	24.5	60.5	Strong	Long	Medium.
40	Golden Prolific	22.3	58	"	Medium	"
41	Jennings	28.4	59	"	"	Large.

The average yield was 27.9 bushels per acre. This average is much below that of the same and a few other varieties for last year. This falling off, however, is thought to be due entirely to the unfavorable season. The quality of the straw was estimated from the per cent. of the plot that lodged. Thus if 30 per cent. or more lodged, the straw was considered "very weak;" 15 to 30 per cent., "weak," and 1 to 15 per cent., "medium." Such as did not lodge at all were considered "strong;" although there would be a much larger number lodged in a season more favorable to the growth of wheat.

Although there is a wide difference in the yields—the extremes being 16.5 and 40.8 bushels per acre—the variation in average yields of the bearded and smooth varieties of the red and white wheat is very small. These averages, together with the averages for weight of measured bushel, are given in Table II:

TABLE II.—Average Yield per acre of Bearded and Smooth Red and White Varieties of Wheat:

	Number of varieties.	Average yield per acre—bushels.	Average weight of measured bushel—pounds.
Red, bearded	14	27.0	59.4
Red, smooth	18	28.9	59.6
Red, total	32	28.1	59.5
White, bearded	3	25.1	59.2
White, smooth	6	28.6	59.2
White, total	9	27.4	59.2
Total beard	17	26.8	59.5
Total smooth	24	28.8	59.4
Grand total, all varieties	41	27.9	59.5

The smooth wheats yielded better than the bearded, and the red wheats better than the white. These results would undoubtedly be modified by increasing the number of varieties of white wheat, for a few of the best only were grown, and those known to be decidedly inferior were excluded. The opinion held very generally, that the varieties of bearded wheat in general are more productive, is not verified by our experiments, the smooth wheats usually returning the larger yields.

In addition to the above, six plots were sown on the piece of rich bottom land from which the mangel-wurzels were taken last year. These were sown October 13th, at various rates of seed per acre, the amounts sown depending upon the quantity of seed on hand; because of the lateness of the date there was no thought of making an experiment of it, the object being to obtain a sufficient quantity of seed to sow a larger variety the following season. But an account was kept of the quantity of seed, and area sown of each variety, date of ripening and yield. The quality of the grain from all these late sown plots was very good, and that of

Tasmanian Red and Nigger uncommonly large and of excellent quality. The rate at which the seed was sown, and the rate of yield per acre were as follows:

TABLE III.

Variety.	Rate of seed per acre—pecks.	Yield of grain per acre—bushels.
Nigger	7	11
Tasmanian Red	6	11
Extra early Oakley	6	10¼
Martin's Amber	16	48
Wyandott Red	11	30 1-3
Velvet Chaff	6	10 3-5

From this experiment it appears that the later that wheat is sown, after a certain time, more seed is required per acre to procure a good stand and large yield. There is, however, a limit to the quantity of seed, beyond which amount it would be unprofitable to sow, however late the seeding may be done. But what this limit may be this experiment does not show. The root crop taken from the ground left it very loose and porous on top, and the wheat froze out badly. It was not troubled with the fly, and there was no rust or smut in this.

For the general crop the following varieties were sown upon bottom land: Finley, Valley, Velvet Chaff, Deitz and Poole. The following table exhibits the results from these varieties:

TABLE IV.

Variety.	Area sown.	Total yield—bushels.	Yeld per acre—bushels.
Finley	8	220	27½
Valley	13	366	28 1-7
Velvet Chaff	....	193	....
Deitz	2	49	24½
Poole	1-5	3	15

The Finley was sown on wheat ground very early—the last week in August—and made a very rank fall growth, and was almost entirely free from rust and the attacks of the fly. It wintered well and grew very rank in the spring. In consequence it rusted some, and nearly every square rod of it lodged before the berry was filled. Much of the grain of this variety was shriveled and of light weight. The other varieties were sown later, and on corn ground.

The Valley grew in the southwest river bottom field. This grew the most uniform, and stood up the best of any of these five varieties. The kernel was not large but was hard, and of good quality.

The Velvet Chaff grew on the west field river bottom land. About half this field, next the river, lodged badly; the remainder stood well and ripened evenly. The grain of that which stood well was of excellent quality, but that which lodged was only second grade.

The Deitz and Poole were grown upon that part of the place known as the "south island," after corn. The Wild Pea-vine or Wild Buckwheat (*Polygonum Convolvulus*) came up in such abundance as to almost destroy the wheat crop, twisting about and lodging all of it, necessitating its being cut with a mower and the scythe. The grain of both these varieties is very large, and of fine quality. Some of it was shriveled this season from its being lodged and the harmful weeds.

EXPERIMENTS WITH OATS.

A series of experiments was begun last season to determine whether the amount of oats it is customary for the farmer to sow is the best. For this purpose six plots, each one-fourth of an acre in size, were sown, the soil being a fertile but stiff clay, plane land, clover sod. Seed was sown upon these plots in quantities varying from three to twelve pecks per acre, the variety of oats being the Clydesdale. The seeding was done with a Buckeye grain drill, the drill being set and tried and reset until the exact amount of grain required was sown for the respective plots. The results of this season's trials are given in Table V.

TABLE V.—Thick and Thin Seeding of Oats.

Plot number.	Seed per acre—pecks.	Yield of grain per acre—bushels.	Weight of measured bushel—pounds	Yield of straw per acre—pounds.
1	3	45.63	38.5	2904
2	4	47.40	37.5	3084
3	6	49.75	37.25	3188
4	8	50.63	36.5	3212
5	10	49.38	36.0	3392
6	12	46.79	36.0	3284

It is apparent from this trial, that for this soil and the past season, about eight pecks is the proper amount of seed, and that from the use of a greater or less amount of seed a smaller yield is obtained. The increase in yield with the increased amount of seed sown up to eight pecks is remarkably uniform, and the decrease in yield with an increase in seed over eight pecks, is equally remarkable. The quality of the grain, as determined by the weight, is best from the use of the smallest amount of seed sown, and is poorer from each succeeding plot, that from the use of twelve pecks of seed being the lightest.

The greatest weight of straw was obtained from the ten pecks per acre, there being a gradual and very uniform increase from the two pecks to the ten pecks plot. There was a little less straw upon the twelve pecks plot.

SUGAR BEETS AND MANGEL-WURZELS.

The ground upon which the following varieties of beets and mangel-wurzels grew is a rich alluvial bottom. Clover had been on the ground the season before, but was nearly all killed by the severe winter. The ground was newly plowed and prepared and the seeding done on the 2d and 3d of June, with a Planet, Jr., garden seed drill. In order to secure greater uniformity in the distribution of the seeds in the drill row, they were first separated into three grades by means of an adjustable sieve. A heavy, beating rain soon after seeding was followed by hot, dry weather, baking a crust over the seeds. The plants were most of them more than two weeks breaking through this, and many of them perished without breaking the crust. From this cause the plants were uneven on the ground.

At the time of the second weeding the plants were thinned to eight inches, where there were enough to require thinning. They were harvested on the 14th and 15th of October. The total product of each variety was weighed separately, and the area of the plot carefully measured. In order to learn something of the possibilities of each variety under the same treatment a section two square rods in size was selected in each variety in such part of the plot as showed the best stand. The product of this portion of the plot was weighed separately, and the rate of yield per acre calculated.

TABLE VI.—Variety of Sugar Beets and Mangel-Wurzels.

Plot number.	Variety.	Area—acre.	Total yield—pounds.	Rate of yield per acre—pounds.	Yield from two square rods—pounds.	Rate of yield per acre from two square rods—pounds.
1	Yellow Globe	.507	10,839	21,368	365	29,200
2	Lane's Imperial Sugar	.514	12,060	23,460	590	47,200
3	Golden Tankard	.517	12,315	23,820	665	53,200
4	Long Red	.468	13,751	29,380	875	70,000
5	Red Globe	.468	6,265	13,386	475	38,000
6	Yellow Ovid	.468	10,795	23,160	575	46,000

Table VI displays the area sown to each variety, the actual yield from this area and rate per acre, the yield from the selected two square rods and the corresponding rate of yield per acre. As shown by the table, with two exceptions, the rate of yield per acre of the whole plots was very uniform. The two exceptions present the two extremes in yields, the one being the least yield, produced by the Red Globe, and the other being the greatest yield, produced by the Long Red. The Long Red also gave the largest yield from the selected two square rods, being at the rate of 35 tons per acre. The smallest rate of yield from two square rods was of the Yellow Globe, it being but little better from the selected part than upon the whole plot. The Long Red is the easiest to harvest, the greater part of the root being above ground. Lane's Imperial Sugar is mostly below the surface of the ground, and is the most difficult to pull out.

PRACTICAL HORTICULTURE.

Hon. L. B. Wing, Chairman Farm Committee:

DEAR SIR: I have the honor to submit herewith the annual report of the outdoor work of the department of horticulture, for the year ending November 1, 1887.

OBJECT OF THE GARDENS.

As has been stated heretofore, the primary object of the gardens as adjuncts to the department of botany and horticulture, is illustration and practical experience.

1. To do for the students of horticulture what the laboratory does for the students of chemistry, the machine shop for those in mechanical arts, or the hospital for the student of medicine and surgery. In other words, it is a place where the instruction of the class-room and text-book may find practical illustration.

2. By making the labor performed in the gardens in part remunerative as well as educational, thus enabling students who so desire, an opportunity to defray their expenses while acquiring an education.

The gardens then, are simply a means whereby students may become practically familiar with various horticultural operations. They afford opportunity to test the merits of different varieties of fruit, vegetables and ornamental plants, to show the effects of different methods of culture, and examples of general garden management.

As constituted at present this branch of the department of botany and horticulture presents at least five distinct means of illustration and practical experience. These are as follows: (1) *a vegetable garden;* (2) *a fruit garden;* (3) *nursery and forest-tree plantations;* (4) *propagating house and flower garden;* (5) *experimental grounds.*

The importance and necessity of these have already been pointed out in previous reports. I still maintain that in order to teach horticulture successfully, it must be treated as an *art, based on science.* Observation and practice must supplement the instruction of the class-room. Without a clear conception of the practical operations, the principles upon which they are based are not fully appreciated. Last spring all of the students in horticulture performed the operation of grafting. They prepared the cions, and with careful supervision did all of the work with their own hands. This course was taken in order to prepare them for a careful study of the scientific principles underlying the whole subject of propagation.

No one can learn how to bud, or graft, or prune trees and vines from lectures or books alone. Each student must perform these different operations for himself. It will be seen that illustrative and educational labor in this department covers a wide range of subjects. We have courses of study in *fruit culture* (embracing both the large and small fruits); in *vegetable gardening and seed growing;* in *arboriculture and forestry;* in *floriculture and landscape gardening.* It is the aim to supplement each of these courses of study with some practice or laboratory work. More of practical work would have been undertaken if the students had more time at their command. As it is at present, the agricultural chemical laboratory in the forenoon, and the class-room work in agriculture in the afternoon, leaves little or no time for work in the gardens and orchard. This is an obstacle to the successful teaching of horticulture that ought to be removed. It is my desire to constantly use the gardens and orchards, and all the operations therein performed, for illustration, practical demonstration and training.

GENERAL STATEMENT.

The past season has not been a favorable one for fruit and vegetables here in central Ohio. The winter was comparatively mild. The temperature rarely fell to the zero point and the minimum record was only ten degrees below. Fruit of all kinds were uninjured and the early spring was rich in promise. The favorable weather throughout the spring months and extending to the beginning of summer, prolonged the expectations of a bountiful harvest, but the realization of our hopes was blasted by the intense heat and severe drouth that followed. I presume there have been summers fully as hot and dry as that of the present season, but I have seen nothing like it during the six years spent in Ohio.

For three months, counting from the 10th of June, nearly every day was a hot one, while the rainfall was equally infrequent and inadequate. As a general result the earth was parched and dry. Streams and ponds either dried up or shrunk to their lowest dimensions, and crops of nearly all kinds proved a disappointment to the hopes of the growers. Statistics show that the annual average product of Ohio is scarcely two-thirds of a full harvest.

The heat of the past summer was remarkable for its persistence as well as its intensity, while the drouth, though not peculiar for its early commencement, is noted for its extreme duration.

The maximum temperature which was reached about the middle of July was 102°.5, F., and the average for the months of June, July and August is unusually high. From the 9th of June until the 10th of November—a period of five months—the total rainfall here at the State University was only 6½ inches. This fierce and long-protracted drouth, together with the tropical heat, cut short the harvest of small fruit and caused an almost complete failure of most vegetable crops.

THE QUESTION OF IRRIGATION.

Such seasons as the past emphasize the fact that the most essential factor in crop production is soil-moisture. Our land was liberally fertilized, but the fertility of the soil was unavailable on account of the lack of soil-water.

The question of the best means of securing to garden crops a proper amount of moisture in time of drouth, is one of signal importance, and demands a practical solution.

We had a limited amount of water to use the past season, drawn from the water pipes which supply the main building. This was used to irrigate such vegetables as celery and other things that were especially in need of water, and enabled us to save, in part at least, some crops that would otherwise have proved total failures. A considerable portion of the garden situated directly west of the main building could be thoroughly irrigated at comparative small expense. The practicability of thus using an artificial water-supply ought to be tested upon a larger scale than the means at the command of the department has yet permitted. One hundred dollars would probably cover all the expense of irrigating the crops on an acre. I fully believe that in seasons like the past, this cost would be more than repaid in the increased products of the land so treated. The horticultural department of the State University should take the lead in experimental tests of this character.

As our country is more and more denuded of its forest trees, drouths severer even than that of the past season may naturally be expected.

We ought, as far as possible, to prepare for, and provide against them.

SPECIAL WORK OF THE YEAR.

The work carried on in this department during the past year has been essentially the same in general character as that of former seasons.

The amount of strictly experimental work was considerably less than usual, owing to the financial condition of the experiment station. In certain directions the attempt was made to carry out on a larger scale than heretofore certain plans, which former experiments have indicated as likely to lead to good results.

In order to illustrate this point more fully, some portions of our work will be described somewhat in detail.

THE VEGETABLE GARDEN.

In this department nearly all of the garden vegetables usually grown for home use and market are cultivated. The best varieties are the most largely grown, but a long list of different sorts are planted for the purpose of comparison and study.

Celery.—This important garden crop requires a moist, rich soil, which can be secured here only by the liberal application of fertilizers, and by irrigation. In ordinary field culture the latter is often impracticable, but the plan we have followed for the past two or three years is one that can be safely recommended. The method in question is a modification of the trench system. A bed or trench about four feet in width is carefully prepared and thoroughly enriched with compost. A few inches of soil is thrown out, leaving the surface of the bed below the level of the adjoining ground. This is to facilitate the operation of flooding. The plants are set in rows one foot apart, and are placed at intervals of six inches in the rows. The rows run crosswise of the bed. The beds are flooded at frequent intervals, as occasion seems to require. The result is that the plants make a vigorous growth, and the product is exceedingly fine and tender, affording celery of the very best quality. This method is especially useful for private growers, and could in many cases be profitably employed by market gardeners. By selecting the variety known as the "White Plume," which, owing to its habit of growth, is well adapted for the purpose, but little banking up is required to complete the process of blanching. On this account the alleys or spaces between the beds need not occupy a width of more than two feet.

This close planting admits of more than double the number of plants usually grown upon a given area, while the labor of cultivation and management of the crop is decreased rather than otherwise. The results following this plan of growing several thousand plants the past season have been much more satisfactory than by the ordinary methods.

A new variety, "The Golden Self-Blanching," appears to be well adapted to this method of cultivation, but the quality is not equal to that of the "White Plume." Half Dwarf and Golden Heart are among the most satisfactory varieties we have tested.

Potatoes.—From experiments previously made with fertilizers it was clearly indicated that a commercial fertilizer, containing the principal elements of plant-food in about the proportion in which they are found in barn-yard manure, could be used with profit upon the soil of the vegetable garden. Accordingly half a ton of Mapes' potatoe manure was applied to an acre in connection with farm yard manure, and an equal area was treated with manure alone.

The ground was thoroughly fitted by plowing twice and carefully harrowing.

The early growth was thrifty and vigorous, giving promise of a good crop. Heavy rains washed out many of the plants in some portions of the field, hence the results obtained were not strictly comparable. In another part of the field, however, on small plots, where the work was four times repeated, the results, in all cases, gave a favorable showing for commercial fertilizers as compared with barnyard manure.

The results from the use of incomplete fertilizers were contradictory, hence unsatisfactory. The use of potash and nitrates in no case gave any decided gain. Superphosphate was beneficial in some cases but not in all. These experiments, which are given in detail in the station reports, have been conducted with great care, under the personal supervision of Mr. W. J. Green. They have been in progress for several years, but during this time no very satisfactory answer has been obtained to the important question, "What element, or elements of plant food, is lacking in our garden soil?"

Complete fertilizers, or those containing potash, nitrogen and phosphoric acid have in all cases given a decided gain in the crop.

Where these elements or simple compounds of plant-food were used separately the results have been contradictory.

The method employed in the work is somewhat different from that commonly practiced in plot experimentation, and the uniformity of the results obtained indicate that it is more reliable. It consists simply in increasing the number of unfertilized plots, so that each fertilized plot is surrounded on all sides, for purpose of comparison, with those receiving no treatment whatever. This diminishes the elements of error, and gives opportunity for an intelligent study of soil-varieties. By repeating in this way each experiment several times results have been obtained that may be regarded as reliable and trustworthy.

This method of plot experimentation with fertilizers shows the unreliability of the ordinary system of alternate unfertilized plots, and the utter untrustworthiness of having but one such in a series, as is too often the case. The experimental work with varieties of potatoes was on the usual scale, about one hundred and fifty sorts being on trial. None of the new varieties excel the Early Ohio as an early market sort. The varieties that have given the best general results are Early Albino, Early Standard, Charles Downing and Summit.

Cabbage.—Nearly an acre was devoted to this crop, but owing to the drouth the yield was extremely light. In no vegetable is the necessity of careful selection more apparent than in this, and there is probably no other where this has been carried on to a greater extent. This makes the comparison and study of different strains or varieties an important matter.

The tests made here upon our experimental grounds clearly show that there are but few actual synonyms among the long list of varieties of cabbage.

It is often the case that where no structural differences appear between varieties marked contrasts occur in the crop. As illustrations may be cited, the fact that out of twenty or more strains of Flat Dutch, not five can be depended upon to produce a satisfactory harvest.

Thus far the attempt to describe each strain in distinct terms has not been successful. Other varieties furnish equally as good examples of hereditary qualities that are not visible in the growing crop, but show unmistakably at or near the time of maturity.

No work undertaken in the experiment grounds of this department gives greater promise of usefulness than the comparison of varieties and strains of varieties of garden vegetables. To accomplish the best results this work needs to be undertaken on a larger scale. In this, as in many other things, the horticultural department of the University and the experiment station can co-operate to the decided advantage of both.

Flat Dutch cabbage from Livingston, Landreth and Henderson; Early Wakefield from Brill, Harris and Vick; Early Summer from various sources; and Louisville Drumhead have proved to be the most satisfactory of nearly three hundred samples that have been tested.

Other Vegetables.—Work of a somewhat similar nature to that already described has been carried on with nearly all the more common forms of garden vegetables.

Lack of space and means have necessitated a restriction of the areas devoted to those of minor importance. A complete summary of this work will be given in the forthcoming station report.

It should be mentioned in this connection that the opportunities afforded for the study of varieties are unexcelled.

The question of what varieties to plant is one of the most important, as well as the most difficult, with which the professional gardener has to deal. It is also equally interesting and important to the amateur.

THE FRUIT GARDEN.

The area devoted to fruit is about the same as has been described in previous reports. Heretofore the fruit garden has given the larger part of the income of the department. Last season, owing to the severe drouth, and other causes, the receipts from this source were greatly lessened.

Strawberries.—Soon after the period of fruiting was past, during the season of 1886, it was discovered that the strawberry plants, in all of the beds, were seriously affected by some insects which were preying upon the roots of the plants. Later in the season these insects were identified as *Paria anterrima* and *Graphops pubescens*, two closely allied species of very destructive character. These insects are commonly known as "Strawberry root-worms." They had not been previously observed in this locality. In three of the older strawberry beds the destruction was almost complete. Those planted in the spring of 1886 were injured but little, while one bed planted during the fall of that year escaped with no injury. This gave a hint which was acted upon the present season. The old beds were all plowed under and new ones planted during the spring and late summer. The success of what is known as fall planting depends almost wholly upon its being done during the latter half of the month of July. In order to get plants in good condition for transplanting at this early date, the runners were taken before they had rooted and were planted closely in a bed where they were kept well watered and partially shaded. Within a month they were ready to transplant. Notwithstanding the extreme dry weather of the past fall, these plants have made sufficient growth to give promise of a fair crop the coming season. It is possible by this method to circumvent the "root-worm," also some other enemies of the strawberry. In seasons having the normal amount of rainfall the growth of the plants will be sufficient to produce a good crop the following season. This method is especially applicable where it is desired to occupy the ground with early vegetables the first part of the season, or with a late crop after fruiting. The most desirable varieties for home use, thus far tested, are Sharpless, Cumberland Triumph, Charles Downing and Miner's Prolific. For market the Crescent, Champion, Sharpless, May King and Miner's Prolific are among the best.

The most promising new sorts are Jessie, Crawford, Bubach, Surprise and Summit.

Raspberries.—About one hundred each of red and black varieties are cultivated

Early in the season the promise of a full crop was unusually good. Our expectations were not realized, however, for the crop was cut short by drouth, and a large share of the fruit which came to perfection was eaten by the birds, which were unusually abundant.

The attempt to frighten them away was only partially successful, and it is probable that they took one-half of the crop. This was especially the case with the fruit on specimen plants of new varieties, which in many cases were somewhat isolated from other plants. The plantations, both old and young, are now in good condition. The varieties that have proven most profitable are Turner, Shaffer's Colossal, Reliance, Gregg, Tyler and Ohio.

Of the promising new sorts Hilborn and Golden Queen are worthy of mention.

Gooseberries and Currants.—These are in fair condition. The former yielding a large and profitable crop the past season. It has been the custom in former years to apply white hellebore, in the form of a powder, in order to destroy the currant worms. This was usually effectual, but in some cases it was washed off by the rain soon after being applied, and at times it was often necessary to wait a day or two for a favorable opportunity to make another application. This gave the worms a chance to work, and frequently much damage was done. Using the hellebore in the form of a solution did not prove effectual, mainly because no suitable spraying apparatus was at hand. At all events none was tried that did the work satisfactorily. The past season a force-pump and nozzle, invented by Mr. C. H. Nixon, of Dayton, has been used. This proved to be entirely satisfactory. The work has been done better than ever before, and at less expense.

Such a machine would be a profitable investment for the department, as it can be used for spraying trees and plants of all kinds.

Cherry Orchard.—This is in good condition, and bore a fair crop. As the orchard was originally planted it contained several varieties of both the sweet and sour class. Nearly all the trees of this planting have died, except the Early Richmond.

The vacancies were replanted, and the orchard somewhat extended last spring. The varieties used for this purpose are mainly of the newer sorts. They will be carefully treated, and their merits thoroughly tested and reported upon in due time. This collection of cherry trees was donated through the kindness of Mr. S. D. Bear, of the Heike's Nursery Company, of Dayton, Ohio.

Quince Orchard.—This is in good condition, and some of the trees or bushes bore for the first time.

Vineyard.—The grape vines bore a fairly good crop, but very little of the fruit was saved by the department.

Large quantities were stolen, and a large proportion of what remained was injured or destroyed by the birds.

A new vineyard, containing varieties for trial, has been planted.

Apple Orchard.—As stated in previous reports, the trees have been seriously injured by the severe cold of the past winters. Some have been replaced and others have partially recovered.

Some of the trees bore a partial crop, especially those that were sprayed with arsenites. Trees not so treated bloomed, but nearly all of the fruit dropped before it reached maturity.

Some of the trees have been top-grafted with new varieties for trial.

It is proposed to carry on the same plan with nearly all of the remaining trees, inserting a graft or two each of several varieties on a tree.

The orchard covers more space than is necessary for an experimental and illustrative one. A portion of the trees will be removed as the land is needed for other purposes.

Pear Orchard.—The vacancies caused by the cold winter of 1884 have been filled. This required 108 trees in all.

Grafts of some of the most promising new varieties have been inserted in the tops of some of the most healthy trees. The orchard bore a fair crop of fruit the past season, but the quality was very imperfect, being seriously injured by the punctures of the curculio.

Most of the trees are now in satisfactory condition. Forty varieties ought to yield some fruit next season.

INVESTIGATION OF PEACH YELLOWS.

At the urgent request of Mr. E. F. Smith, who has been appointed a special agent by the U. S. Department of Agriculture to investigate and make a report upon the "yellows" of the peach, the department has consented to co-operate in the investigations. We already have a collection of pits and expect to conduct the following experiments the coming season:

1. To grow several hundred peach trees from the pits of premature peaches, and determine what per cent. of such trees, if any, develop "the yellows."
2. To bud young peach trees (100 or more) with buds taken from trees which have the "yellows" and determine what per cent., if any, afterwards show the disease.

A great step will be gained if the question of transmissibility of "yellows" can be definitely settled pro or con. The statement that "yellows" is spread both by budding and by use of diseased pits, is made without qualification by many, and is as unqualifiedly denied by others. It is a question susceptible of proof. If peach "yellows" can be spread in the ways mentioned above, it ought to be established beyond question.

NURSERY AND FOREST-TREE PLANTATIONS.

We have had no means to extend the work in this important division during the past season, and very little can be added to the report of last year.

During the past two years we have been testing the vitality of the seeds of different forest-trees obtained from various sources. This work is still in progress and no report will now be made. The results thus far obtained are quite interesting, and show that a very large proportion of the tree seeds sold by dealers are worthless.

REPORT ON HEDGES.

In the spring of 1883 a few hundred plants of the Osage Orange were set out, in order to test the best method of making and managing a hedge formed of this well-known plant. The plants were one year old and were trimmed back so as to leave a stem of from three to four inches above the ground. One-third of the plants were placed in a single row, six inches apart, one-third in a single row, nine inches apart, and the remaining third in a double row, twelve inches between the plants and nine inches between the rows. In forming this double row the same number of plants were used as in the first mentioned single row. The hedge rows were kept free from weeds and the ground was well cultivated until the first of September. The plants made a fairly good growth, and there were few failures. About one year from the date of planting, one-half of each row was cut off at the surface of the ground. The remaining half was cut back from one-half to two-thirds of the year's growth. The portion that was cut to the ground threw out numerous shoots which were cut back about the first of July to within six inches of the old cutting. In September they were again trimmed to within six inches of the previous cutting. Since then the hedge has been trimmed twice each year, and is now about three feet high, firm, compact and solid. Little or no side trimming has yet been done, but this will be attended to the coming year. The portion of the hedge not cut back to the ground has done well, but is by no means as compact as the half rows so treated.

In this climate, when properly managed, the Osage Orange appears to be almost an ideal hedge plant. It has at least the following requisites:

1. A good barrier against all kinds of stock.
2. Hardy, and of vigorous, thrifty growth.
3. Easily pruned and trained.
4. Long lived and not subject to injury from disease or insects.

Despite these advantages the use of the Osage Orange as a hedge plant by the ordinary farmer is of doubtful economy. A large majority of the hedges seen in Ohio can justly be regarded as a nuisance to the farms upon which they are growing. They are too troublesome and too costly for the average farmer.

The causes of failure are not hard to find. In the first place there are comparatively few men in the state who have any clear conception of the care and skill necessary in order to establish and maintain a good hedge. Too many are of the opinion that a hedge, after once planted, ought to cost little or nothing This idea has been ruinous in its effects and has done much to check the successful establishment of hedges in this country.

It is the desire and intention of the horticultural department, as soon as it has means at command, to make a thorough test of the comparative value of the following hedge plants: Osage Orange, Honey Locust, Buckthorn, English Hawthorn, American Cockspur Thorn, American Crab Apple, and a few others.

EVERGREEN HEDGES.

One year ago the past spring an evergreen hedge of about one hundred rods in length was planted on the eastern boundary of the fruit and vegetable gardens. Three varieties of evergreens were used, viz.: Arbor-vitæ, hemlock spruce, and Norway spruce. The plants were three years old and were set three feet apart in a carefully prepared hedge-row, about an equal space being devoted to each variety. The arbor-vitæ and Norway spruce have made a good growth, and scarcely a single plant of either has failed. The hemlock stands between a row of pear trees on one side and shade trees on the other, and did as well as could be expected under the circumstances. There is no doubt that each of the above-named varieties of evergreen are admirably adapted for a low, neatly trimmed lawn or garden hedge. Time alone will tell which of the three varieties subserve the purpose best.

THE NORWAY SPRUCE AS A SHELTER OR WIND BREAK.

Eight years ago a double row of Norway spruce was planted on the north and west sides of the University fruit and vegetable garden. These evergreens were placed fifteen feet apart, alternating in the two rows, while the distance between the rows was eight feet. They have made a very luxuriant growth and now form an almost unbroken wall of green. As the five or six acres of level garden would, without this protection, be fully exposed to the mercy of our cold, biting north and west winds, this shelter which cost but a trifle, has a value not easily estimated.

The only labor bestowed upon this belt of evergreens during the past six years has been to occasionally prune a too ambitious side branch and to cut back, now and then, a leader where there was a tendency to grow too tall.

For several years these rapidly growing trees have sensibly modified the harshness of our climate and have afforded some measure of protection to many a tender plant. Nothing connected with the management of the garden has proved of equal advantage and economy. In addition to the shelter afforded, they encourage the birds, and, in winter, at least, are strikingly ornamental.

We cannot too strongly urge the planting of evergreens. They should be used not merely as an ornamental drapery to buildings, but as mollifiers of our changeable climate and economizers of animal food and plant life.

EXPERIMENTS WITH INSECTICIDES.

During the fall and spring terms of the last college year the students in horticulture had an excellent opportunity to watch the results of a series of careful tests to determine the value of different insecticides. These tests were made for the most part in the University gardens, under the direction of Mr. W. B. Alwood, special agent of the entomological division of the U. S. department of agriculture.

IMPROVEMENTS AND NEEDS.

Little has been accomplished or attempted in the way of permanent improvements, for the simple reason that we had no means wherewith to make them.

A wire fence was built along the east side of the fruit garden, and proved useful in keeping out a certain class of trespassers. Those who came to steal fruit at night found no difficulty in getting around it. A stronger and higher fence is needed around the entire garden. This would stop much of the trespassing that now occurs in the day time by those passing to and from the river.

The horticultural department has but one horse at its disposal. This is not sufficient to do the work at all times, and in consequence there are delays that are equally costly and annoying. With two horses the plan of supplying private families with fruit and vegetables, daily, could be carried out.

A new forcing-house is also needed. With this addition the garden would afford profitable employment to a good man the year round, and would increase the opportunity for student labor.

An appropriation of $750 would supply the three urgent needs mentioned, viz.: the wire fence, a good horse, and a forcing-house. Without these our work is seriously crippled, and we cannot compete with similar departments in other institutions.

For the past two years this department has had no means at its disposal, save what it received for the sale of products. Such being the case, no elaborate experiments could be inaugurated, nor could much be done for the sake of appearance.

ACKNOWLEDGMENTS.

The measure of success that has attended the work in this department is very largely due to the ability and faithfulness of Mr. W. J. Green. I desire to renew former expressions of appreciation. The department is also indebted to Mr. W. S. Devol, superintendent of the farm, for ready and cheerful assistance. We are also gratified with the cordial co-operation and sympathy of many of the most earnest and intelligent horticulturists of the State.

From all such we welcome communications, and solicit counsel and suggestions.

STATEMENT OF THE RECEIPTS AND DISBURSEMENTS OF THE HORTICULTURAL DEPARTMENT OF THE OHIO STATE UNIVERSITY FOR THE YEAR ENDING NOVEMBER 15, 1887.

Receipts.

Balance on hand	$9 18
Strawberries sold	188 48
Raspberries sold	269 85
Other fruits sold	60 50
Vegetables sold	260 81
Plants sold	50 52
Miscellaneous	1 00
Total:	$840 34

Disbursements.

Labor.	$713 28	
Implements, tools, etc	9 36	
Fertilizers	20 25	
Repairing, etc	26 74	
Printing, stationery and postage	3 00	
Trees	18 00	
Seeds	37 45	
Berry crates and boxes	10 50	
Freight	1 50	
Total		$840 08
Balance on hand		$0 26

Respectfully submitted.

WILLIAM R. LAZENBY.

TREASURER'S REPORT.

Columbus, Ohio, *November* 15, 1887.

To the Honorable Lucius B. Wing, *President Board of Trustees of the Ohio State University:*

Sir: I herewith submit my report for the fiscal year ending this 15th day of November, 1887. The report includes the following statements:

I. Recapitulation.
II. Statement of the endowment fund, held by the State of Ohio, the income from which is pledged to the support and maintainance of the University.
III. Statement of Virginia military land fund.
IV. Detailed statement of cash receipts during current fiscal year.
V. Detailed statement of cash disbursements during current fiscal year.
VI. Statement of appropriations made by the board of trustees, and a list of professors, officers and employes, with the salaries of each.

Respectfully,

F. W. Prentiss, *Treasurer.*

STATEMENT I.

RECAPITULATION.

F. W. Prentiss, *Treasurer, in account with Ohio State University:*

		Dr.
To balance, cash on hand as per my report of 1885–6		$11,836 73
To Ohio State Treasury		32,270 48
On account of interest on endowment fund, maturing 1st January, '87	$5,000 00	
Balance on account of same, maturing 1st Jan., '87	6,135 24	
On account of same, maturing 1st July, '87	5,000 00	
On account of same, maturing 1st July, '87	5,000 00	
Balance on account of same, maturing 1st July, '87	6,135 24	
On account of same, maturing 1st January, '88	5,000 00	
To term fees from students		5,864 90
Balance term fees, fall term, 1886	$22 00	
Winter " 1886-7	1,987 40	
Spring " 1887	1,756 00	
Fall " 1887	2,099 50	
To rents—Ohio State University residences		1,950 00

W. H. Scott, President	$385 00	
George W. Knight, Professor	875 00	
A. H. Tuttle, “	47 50	
Benj. F. Thomas, “	425 00	
N. S. Townshend, “	600 00	
W. J. Green, superintendent gardens	117 50	
To Virginia military land sales		3,041 42
Cash payments, payments on notes and interest.		
To miscellaneous receipts		173 28
Sundry sources, as per statement IV.		
		$54.636 81

F. W. Prentiss, *Treasurer, in account with Ohio State University:*

		Cr.
By cash		$47,197 19
Paid faculty, teachers and officials	$34,251 63	
“ on account of expenses board of trustees	48 90	
“ “ “ fuel and care of buildings	990 41	
“ “ “ department supplies	3,027 86	
“ “ “ exp. attending farmers' institutes	215 58	
“ “ “ general repairs	3,860 79	
“ “ “ other current expenses	4,802 52	
To balance—cash in hands of treasurer this day		7,439 62
		$54,636 81

STATEMENT II.

Statement of the Endowment Fund in accordance with the Provisions of an Act passed February 10, 1870, O. L., Vol. 67, Sections 3483 and 3446, R. S.

The principal of the endowment fund is	$537,841 46
And constitutes, to that extent, a portion of the "irreducible debt" of the state of Ohio, upon which the said state pays interest at rate of 6 per cent. per annum—semi-annual rests—and which amounts to	32,270 48

STATEMENT III.

Virginia Military Land Sales.

Net cash receipts from November 15, 1886, as per my report 1885-6, page 72	$38,546 19
Cash receipts during fiscal year 1886-7	3,041 42
Net cash receipts to November 15, 1887	$41,587 61

Note.—$13,665.84 of these receipts have been paid into the Ohio state treasury to the credit of the endowment fund, the remainder having been added to the current funds and applied to the building of new residences for professors, and as otherwise directed by board of trustees.

STATEMENT IV.

DETAILED STATEMENT OF RECEIPTS, BY F. W. PRENTISS, TREASURER, DURING FISCAL YEAR ENDING NOVEMBER 15, 1887.

Date.	From whom received.	On account of—	Amount.
1886. Nov. 16	To balance	As per my report 1885-6	$11,836 73
Dec. 10	Geo. W. Knight	3d installment rent '86-7............	37 50
	A. H. Tuttle	3d " "	47 50
	W. H. Scott	3d " "	38 50
	Benj. F. Thomas............	3d . " "	42 50
	Alexis Cope, secretary	Int. Wm. G. Beekman, 1 year note to July 22, '86 ....$26 56	
	" "	Int. Wm. G. Beekman, 2 year note to July 22, '86.......... 26 56	
	" "	Payment Wm. G. Beekman, 1 year note, due 22d July, 1875 .... 16 22	69 34
22	State Treasury................	Being on account of interest on endowment fund due 1st Jan. '87	5,000 00
27	"	Being balance on acct. of int. on endowment fund to Jan. 1, '87..	6,135 24
	Geo. W. Knight	4th installment rent '86-7............	37 50
	W. H. Scott	4th " "	38 50
	Benj. F. Thomas............	4th " "	42 50
1887. Jan. 14	D. P. McChesney, assignee	Notes of J. A. McMurray	94 75
	Samuel Kendrick	Cash payment for Virginia military lands	1,711 35
	State Treasury.........	Being on account of interest on endowment fund, due July 1, '87..	5,000 00
March 1	Benj. F. Thomas............	5th installment rent, '86-7............	42 50
	S. W. Robinson..............	Sale of old iron.........................	11 26
	W. H. Scott.......	5th installment rent, 86-7............	38 50
	Alexis Cope, secretary	Notes J. A. English, 2, 3, 4 & 5 years, at $33.05 each..$132 20	
	" "	Int. J. A. English, 2, 3, 4 & 5 years, at $33.05 each..... 49 95	182 15
	Geo. W. Knight...............	5th and 6th installment rent, '86-7	75 00
	Benj. F. Thomas	6th " "	42 50
	W. H. Scott......	6th " "	38 50
	W. J. Green..................	Rent farm-house from Feb. 7th to 28, '87......	7 50
April 1	S. W. Robinson	Sale of old iron......	75
	H. A. Weber	Rent farm-house, Nov. and Dec., '86, and January, '87..........	30 00
	Benj. F. Thomas............	7th installment rent, '86-7............	42 50
	W. H. Scott....................	7th " "	38 50
	E. A. Legg	Balance due on parts lots 8 and 9, Pike county	38 00
	Alexis Cope, bursar........	Balance term fees, fall term, '86 ...	22 00
		Winter term bills, 1886-7:	
	" "	Incidentals $1,408 00	
	" "	Chemical laboratory fees.. 220 00	
	" "	Agricultural chemical laboratory fees................ 96 00	
	" "	Physical laboratory fees.. 89 00	
	" "	Mechanical " " .. 60 00	
	" "	Physical " " .. 40 00	

STATEMENT IV—Continued.

Date.	From whom received.	On account of—	Amount.
1887.			
April 1	Alexis Cope, bursar.........	Mining laboratory fees..... 28 00	
	" "	Pharmacy " " 38 40	
	" "	Botanical " " 8 00	
			$1,987 40
May 8	State Treasury..................	Being on account of interest on endowment fund, due July 1, '87	5,000 00
	N. S. Townshend	Rent, year ending May 4, '87.......	300 00
	Benj. F. Thomas........	8th installment rent, '86–7..........	42 50
	W. H. Scott......................	8th " "	38 50
	Geo. W. Knight................	7th " "	37 50
	W. J. Green	Rent farm-house, March, '87	10 00
June 17	Alexis Cope, bursar.........	Spring term bills, 1887:	
	" "	Incidentals.....................$1,260 00	
	" "	Chemical laboratory fees.. 200 00	
	" "	Physical " " .. 91 00	
	" "	Agr'l chem'l " " .. 64 00	
	" "	Mechanical " " .. 55 00	
	" "	Pharmacy " " .. 40 00	
	" "	Physiological " " .. 35 00	
	" "	Botanical " " .. 2 00	
	" "	Stall rent, etc................. 9 00	
			1,756 00
	Benj. F. Thomas.............	9th installment rent, 1886–7........	42 50
	George W. Knight..........	8th " "	37 50
	W. H. Scott......................	9th " "	38 50
	W. J. Green....................	Rent farm-house, April, 1887........	10 00
30	State Treasury................	Being balance on account of interest on endowment fund to July 1, 1887	6,135 24
	N. S. Townshend............	Rent, year ending May 4, 1886.....	300 00
	S. A. Norton.....................	Supplies sold students chem. dep't	127 40
	Benj. F. Thomas.............	10th installment rent, 1886–7..	42 50
	Geo. W. Knight.............	9th " "	37 50
Sept. 1	State Treasury..........	Being on account interest on endowment fund due Jan. 1, 1888..	5,000 00
Oct. 26	W. H. Scott......................	10th installment rent, 1886–7..	38 50
	W. J. Green.....................	Rent farm-house, May and June, '87	20 00
	Geo. W. Knight...............	10th installment rent, 1886–7.......	37 50
	Alexis Cope, secretary.....	Payment H. W. Overman's notes..	100 00
	W. H. Scott......................	Postage stamps sold students.......	13 87
	W. J. Green.....................	Rent farm-house, July and Aug., '87	20 00
	Geo. W. Knight.............	1st installment rent, 1887–8...	37 50
	Benj. F. Thomas..............	1st " "	42 50
	W. J. Green........	Rent farm-house, September, 1887	10 00
	Alexis Cope, secretary.....	Payment W. R. Walker's notes.....	79 88
	Johnson Spence.......	Purchase money discovery No. 54 (sub-div. 2), Scioto county	80 00
	Stephen Fisk	Part purchase money discovery No. 116, Adams county..................	300 00
	Samuel Kendrick............	On account of discovery No. 54.....	150 00
Nov. 15	Alexis Cope, bursar.........	Fall term bills, 1887:	
	" "	Incidentals.....................$1,612 50	
	" "	Chemical laboratory fees 120 00	
	" "	Agr'l chemical " " 128 00	
	" "	Physical " " 133 00	
	" "	Mechanical " " 60 00	
	" "	Physiological " " 40 00	
	" "	Botanical " " 4 00	
	" "	Stall rent....................... 2 00	
			2,099 50

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STATEMENT—Concluded.

Date.	From whom received.	On account of—	Amount.
1887. Nov. 15	Geo. W. Knight	2d installment rent, 1887-8	$37 50
	W. H. Scott	1st and 2d installment rent, 1887-8	77 00
	Benj. F. Thomas	2d " "	42 50
	W. J. Green	Rent farm-house, October, 1887	10 00
	Chas. Kilbourne	Sale of old iron	20 00
	Samuel Kendrick	Balance for discovery No. 54	236 50
			$54,636 81

STATEMENT V.

Detailed Statement of Disbursements, by F. W. Prentiss, Treasurer, during Fiscal Year ending November 15, 1887.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886. Nov. 27	Wm. Fish & Son	Stone-work repairing tower	1	$1,365 00
	W. H. Scott	Salary Nov., '86, installment	2	300 00
	Edward Orton	" "	3	225 00
	S. A. Norton	" "	4	225 00
	N. S. Townshend	" "	5	225 00
	A. H. Tuttle	" "	6	225 00
	S. W. Robinson	" "	7	225 00
	N. W. Lord	" "	8	100 00
	S. C. Derby	" "	9	225 00
	Wm. R. Lazenby	" "	10	225 00
	J. R. Smith	" "	11	225 00
	B. F. Thomas	" "	12	225 00
	H. A. Weber	" "	13	225 00
	Clara Fisher	" "	14	15 00
	Geo. C. Comstock	" "	15	225 00
	Geo. W. Knight	" "	16	225 00
	H. J. Detmers	" "	17	120 00
	A. P. Blocksom	" "	18	50 00
	C. N. Brown	" "	19	140 00
	Alice K Williams	" "	20	100 00
	E. A. Eggers	" "	21	120 00
	Geo. B. Kauffman	" "	22	40 00
	David O'Brine	" "	23	100 00
	Geo. W. McCoard	" "	24	120 00
	Jos. N. Bradford	" "	25	100 00
	A. H. Welsh	" "	26	120 00
	Benj. W. Snow	" "	27	80 00
	Vernon J. Emery	" "	28	12 50
	Alexis Cope	Salary to Dec. 1, 1886	29	104 16
	F. W. Prentiss	" "	30	29 17
	Pedrick & Ferris	Brick-work repairing tower	31	1,015 00
	Chas. A. Barton	Bal. due as agent Virginia military lands	32	145 60
Dec. 1	D. Y. Murdock	Advertising University M.E. Conference	33	6 00
	The Edwin Alden & Co.	Advertising University	34	212 89

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Dec. 1	R. O. Smith & Co	204 feet ¼ round	35	32 28
	Columbus Bolt Works	4 iron rods to order	36	6 00
	Col. Electric Supply Co	Supplies chemical dept	37	17 65
	Col. Brass & Steam P. Wks.	" mechanical dept	38	19 80
	S. W. Robinson	" " "	39	30 18
	Seth L. Hayes	" military "	40	9 85
	H. T. Stephens	" " "	41	2 88
6	Columbus post-office	500 2c stamps, etc., for sec'y	42	12 00
7	W. S. Devol	Salary to December 1, 1886	43	50 00
10	A. H. Smythe	Supplies, stationery	44	2 80
	Geo. F. Wheeler	Soap and matches	45	4 80
	Siebert & Lilley	One order book	46	10 75
	W. U. Telegraph Co	Messages	47	1 89
	Seth L. Hayes	Care arms during fall term '86	48	5 00
	P. G. Hall	Bal. on band instruments	49	50 00
	"	Supplies zoological dep't	50	2 50
	Chas. Huston	" "	51	8 55
	Wm. G. Dunn & Co	" "	52	5 80
	The Educat'al Supply Co	" "	53	18 52
	Geo. M. Maris & Co	" "	54	60
	F. O. Jacobs	" "	55	14 00
	Senter & Lerch	" "	56	14 00
	A. H. Tuttle	" "	57	14 23
	N. W. Lord	Supplies mining department	58	17 70
	M. F. Capron	Repairs physical dep't	59	1 45
	Braun & Bruck	Supplies " "	60	8 77
	Jas. W. Queen & Co	" " "	61	392 85
	Kauffman, Lattimer & Co.	" " "	62	15 58
	Jas. W. Queen & Co	" " "	63	269 07
	M. F. Capron	Repairs on building	64	6 03
	E. O. Randall & Co	" Prof. Thomas' res	65	15 00
	Val. Loewer	4 walnut tables	66	20 50
	Thos. B. Hunt	General rep'g., 91 hrs., @ 25c.	67	25 15
	Chas. Wheeler	" dormitory	68	82 15
	Jas. G. Pulling & Co	" ste'm heating	69	9 15
	Col. Brass & Steam P. Wks.	" "	70	9 25
	Clara Fisher	Term fees refunded by order trustees	71	5 00
	J. P. Hine	Term fees refunded by order trustees	72	5 00
	O. F. Brashears	Term fees refunded by order trustees	73	5 00
	S. Humphreys	Term fees refunded by order trustees	74	5 00
	Mark Francis	Term fees refunded by order trustees	75	8 00
18	Wm. H. Scott	Salary Dec. 1, '86, installment	76	300 00
	Edward Orton	" "	77	225 00
	S. A. Norton	" "	78	225 00
	N. S. Townshend	" "	79	225 00
	A. H. Tuttle	" "	80	225 00
	S. W. Robinson	" "	81	225 00
	N. W. Lord	" "	82	100 00
	Samuel C. Derby	" "	83	225 00
	W. R. Lazenby	" "	84	225 00
	J. R. Smith	" "	85	225 00
	H. A. Weber	" "	86	225 00
	B. F. Thomas	" "	87	225 00
	Geo. C. Comstock	" "	88	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1886.				
Dec. 18	Geo. W. Knight	Salary Dec. 1, '86, installment	89	$225 00
	H. J. Detmers	" "	90	120 00
	A. P. Blocksom	" "	91	50 00
	C. Newton Brown	" "	92	140 00
	Alice K. Williams	" "	93	100 00
	E. A. Eggers	" "	94	120 00
	Geo. B. Kauffman	" "	95	40 00
	David O'Brine	" "	96	100 00
	Geo. W. McCoard	" "	97	120 00
	Jos. N. Bradford	" "	98	100 00
	A. H. Welsh	" "	99	120 00
	B. W. Snow	" "	100	80 00
	V. J. Emory	" "	101	12 50
	Anna Neill Scott	" "	102	15 00
	Alexis Cope	Salary to January 1, 1887	103	108 33
	F. W. Prentiss	" "	104	25 00
	W. S. Devol	" Dec., '86, installment	105	50 00
12	A. Blake	1½ days' digging	106	2 25
18	D. J. Ryan	Legal services Scioto county	107	75 00
	Seth H. Ellis	Inspect'n Virginia mil. lands	108	16 50
	A. H. Tuttle	Expenses att'g farmers' inst	109	18 50
	M. F. Capron	78 hours as instructor in mechanical department	110	19 50
	"	Repairs chemical dep't	111	21 88
	Jesse Jones	66 hrs. work in mech. dep't	112	16 50
	H. J. Detmers	Expenses att'g farmers' inst	113	27 01
	Amos Markey	Cleaning machinery mech. department	114	4 50
19	L. E. Mathews	Slating blackboards, etc	115	85 00
1887.	Jas. Clarke	Repairs main building	116	102 50
Jan. 19	Anna Neill Scott	34 hrs. work in geolog'l dep't	117	8 50
	Kilbourne, Jones & Co	Supplies chemical dept	118	2 90
	Columbus Transfer Co	Freight & dray chem'l dep't	119	14 14
	W. S. Devol, supt. farm	Hauling for University	120	7 25
	P. Hayden & Sons	1 ton Blossburg coal, mech'l department	121	4 25
	Wells & Tracy	Supplies	122	5 75
	Geo. F. Wheeler	"	123	5 78
	J. D. Riggs	Repairing chair	124	2 10
	F. Alfred Reichardt & Co	Supplies chemical dep't	125	387 08
	J. W. Queen & Co	" physical dep't	126	24 75
	Pedrick & Ferris	Repairing chimneys	127	22 65
	Senter and Lerch	Supplies chemical dep't	128	8 33
	M. C. Lilley & Co	One bunting flag	129	19 90
	J. M. Stuart	Carriages for trustees	130	6 00
	Col. Brass & S. P. W'ks Co	Supplies	131	17 07
	Kauffman, Lattimer & Co	" hort'l & bot'l dept	132	2 85
	Geo. M. Maris & Co	" " "	133	8 49
	E. B. Armstrong	Supplies—chemical dep't	134	1 00
	S. A. Norton	" " "	135	13 44
	Geo. H. Twiss	" "	136	1 70
	McCune, Lonnis & Griswold	Blank keys	137	2 71
	N. W. Lord	Expenses att'g farmers inst	138	9 95
	Edward Orton	" " "	139	9 25
	W. H. Scott	" " "	140	21 79
	Gazette Printing Co	Printing blank cards, etc	141	22 25
	Nitschke Bros	" " "	142	4 60

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887. Jan. 19	Chas. S. Fay	2 acknowledgments Virginia military land deeds	143	$ 80
	W. U. Telegraph Co	Telegrams	144	35
	Cen'l Union Telephone Co	2 installments quarter end'g Apr. 1, '87, use toll lines, $1.25	145	26 25
	W. H. Scott	Repairs at residence of pres.	146	4 00
	M. F. Capron	82 hours physical dep't	147	18 45
	Aston & Huff	Supplies "	148	2 25
	Seth Hayes	Repairs arms and equipm't	149	7 73
	W. R. Lazenby	Expenses att'g farmers' inst	150	19 40
	A. H. Smythe	Record school of engineer'g	151	90
	B. & O. Express Co	Freight on reports	152	2 50
	W. H. Hannum	Copying records phys'l dept	153	5 40
	H. D. Bishop	27½ hours' work "	154	5 50
	A. H. Tuttle	Supplies physical dept	155	7 62
22	Columbus post-office	1 M 5-c. stamps, 500 2-c. stamps	156	60 00
	P. F. Brashears	Balance due on laboratory	157	3 00
	Eimer and Amend	Supplies chemical dep't	158	8 29
29	N. W. Lord	Salary Jan., '87, installment	159	100 00
	David O'Brine	" " "	160	100 00
	A. H. Welsh	" " "	161	120 00
	F. W. Printiss	" to February 1, '87	162	25 00
	Alexis Cope	" " "	163	108 33
	W. H. Scott	" Jan., '87, installment	164	300 00
	S. A. Norton	" " "	165	225 00
	H. A. Weber	" " "	166	225 00
	C. Newton Brown	" " "	167	140 00
	Edward Orton	" " "	168	225 00
	A. H. Tuttle	" " "	169	225 00
	J. N. Bradford	" " "	170	100 00
	E. Eggers	" " "	171	120 00
	H. J. Detmers	" " "	172	120 00
	Geo. C. Comstock	" " "	173	225 00
	Geo. W. McCoard	" " "	174	120 00
Jan. 29	Geo. W. Knight	" " "	175	225 00
	J. R. Smith	" " "	176	225 00
	Alice K. Williams	" " "	177	100 00
	Benj. W. Snow	" " "	178	80 00
	W. R. Lazenby	" " "	179	225 00
	Benj. F. Thomas	" " "	180	225 00
	S. W. Robinson	" " "	181	225 00
	W. S. Devol	" " "	182	50 00
	A. P. Blocksom	" " "	183	50 00
31	W. J. Green	Salary Nov. and Dec., '86, and Jan., '87	184	75 00
Feb. 4	S. C. Derby	Salary Jan., '87, installment	185	225 00
	C. G. Newton	30½ hours' carpenter work	186	5 34
5	N. S. Townshend	Salary Jan., '87, installment	187	225 00
	Geo. B. Kauffman	" " "	188	80 00
11	Washington Townsend	" to Feb., '87	189	39 00
12	Anna Neill Scott	" Jan., 87, installment	190	15 00
21	Vernon J. Emery	" " "	191	12 50
26	W. H. Scott	" Feb., '87, "	192	300 00
	E. Orton	" " "	193	225 00
	S. A. Norton	" " "	194	225 00
	N. S. Townshend	" " "	195	225 00
	A. H. Tuttle	" " "	196	225 00
	S. W. Robinson	" " "	197	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887.				
Feb. 26	N. W. Lord	Salary Feb., '87, installment	198	$100 00
	S. C. Derby	" " "	199	225 00
	W. R. Lazenby	" " "	200	225 00
	J. R. Smith	" " "	201	225 00
	H. A. Weber	" " "	202	225 00
	J. N. Bradford	" " "	203	100 00
	Geo. W. Knight	" " "	204	225 00
	Geo. C. Comstock	" " "	205	225 00
	Geo. W. McCoard	" " "	206	120 00
	B. F. Thomas	" " "	207	225 00
	Benj. W. Snow	" " "	208	80 00
	Alexis Cope	Salary to March, '87	209	108 33
	E. A. Eggers	" Feb., '87, installment	210	120 00
	H. J. Detmers	" " "	211	120 00
	V. J. Emery	" " "	212	12 50
	Alice K. Williams	" " "	213	100 00
	A. H. Welsh	" " "	214	120 00
28	W. S. Devol	" " "	215	50 00
	A. P. Blocksom	" " "	216	50 00
	C. Newton Brown	" " "	217	140 00
	Anna Neill Scott	" " "	218	15 00
	W. J. Green	" to March, '87	219	25 00
March 1	F. W. Prentiss	" "	220	25 00
	E. C. Grove	" "	221	33 33
	C. G. Newton	5 hours' carpenter work	222	87
	The Columbus Record	Advertising clinic	223	10 00
4	E. Cook & Bros	100 copies Evening Dispatch	224	3 00
	Comly & Co	30 copies Toledo Commercial	225	70
	Myers Bros	Printing 100 programmes	226	15 00
	Ohio State Journal	Printing and stationery	227	22 75
	W. H. Scott	Expenses att'g farmers' inst.	228	10 66
	A. H. Tuttle	" " "	229	10 17
	H. A. Weber	" " "	230	31 90
	H. J. Detmers	" " "	231	22 70
	Aston & Huff	Supplies—chemical dep't	232	6 50
	Mark Francis	Salary Jan'y and Feb'y, 1887	233	40 00
	Earl L. Clark	125 hrs. work, @ 14 c. pr. hr.	234	17 50
	Thos. Garrett	4½ days' w'k, @ $1.25 pr. day	235	5 62
	T. V. Hipp	109 m. lime, @ 8 cents	236	8 72
	C. R. Rhoads	75 hrs. work, @ 14 c. pr. hr	237	10 50
	T. J. Scanlan	207½ " 14 "	238	29 05
	P. F. Clarke	10½ days' work, @ $1.25 p. day	239	31 05
	Wm. H. Holmes	218½ hrs. " @ 14 c. p. hr.	240	29 29
	W. S. Devol, Farm Mgr	39 hrs. farm team in clearing	241	5 85
	J. T. Clark	282½ hrs. work, @ 14 c. p. hr.	242	39 55
	Wm. Taylor	1 gross matches	243	5 50
	Siebert & Lilley	2 warrant books	244	11 00
	Cent'l Union Telephone Co	Rent time sig'l line to Feb., '88	245	25 00
	D. W. Groff	Freight and drayage	246	19 72
	F. E. Mills	2 door mats	247	8 00
	Braun & Bruck	25 lbs. borax, $2.50; 5 lbs. sulphur, 25 cts.	248	2 75
	W. U. Telegraph Co	Telegrams	249	1 08
	V. J. Emery	8 yards ribbon, @ 10 cts	250	80
	J. M. & W. Westwater	4 lamps and chimneys	251	2 40
	Webb & Jones	Carriages for trustees	252	11 00
	C. S. Fay	2 acknowledgment deeds	253	80
	Washington Townsend	24 days janitor, Feb'y, 1887	254	36 00
	Col. Water Works	Rep'g meter, hort. build'g	255	2 25

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887. March 4	R O. Smith & Co	Repairs, lumber for same	256	$16 08
	Buffalo Forge Co	Supplies, mech'l departm't	257	7 00
	H. P. Minot	" "	258	2 73
	Frank Prine	Work on cases, chem'l dept.	259	18 00
	Braun & Bruck	Supplies, physical departm't	260	2 78
	Jas. W. Queen & Co	1 Kew magnetometer	261	343 85
	Adam Schneider	Repairs, Dr. Knight's res	262	8 25
	Kelley & Co	" plumbing	263	35 65
	Thos. J. Driskell & Co	" boilers	264	60 00
	Geo. M. Maris & Co	" glass and hardware	265	6 30
	Col. Brass & Steam Pipe W's	1 Gordon Maxwell pump	266	186 52
	" "	Supplies, etc., steam heating	267	26 24
	David O'Brine	Salary Feb., '87, installment	268	100 00
	Columbus Post Office	Stamps & stamped envelopes	269	44 50
	Geo. B. Kauffman	Salary Feb., '87, installment	270	80 00
	W. R. Kinnear	Repairs on tower	271	357 10
	A. H. Tuttle	Salary March, '87, installm't	272	225 00
26	N. W. Lord	" " "	273	100 00
	W. H. Scott	" " "	274	300 00
	Edward Orton	" " "	275	225 00
	S. A. Norton	" " "	276	225 00
	N. S. Townhsend	" " "	277	225 00
	S. W. Robinson	" " "	278	225 00
	S. C. Derby	" " "	279	225 00
	H. A. Weber	" " "	280	225 00
	J. N. Bradford	" " "	281	100 00
	W. R Lazenby	" " "	282	225 00
	J. R. Smith	" " "	283	225 00
	H. J. Detmers	" " "	284	120 00
	Geo. W. Knight	" " "	285	225 00
	Geo. W. McCoard	" " "	286	120 00
	Benj. F. Thomas	" " "	287	225 00
	Geo. C. Comstock	" " "	288	225 00
	A. P. Blocksom	" " "	289	50 00
	David O'Brine	" " "	290	100 00
	A. H. Welsh	" " "	291	120 00
	C. N. Brown	" " "	292	140 00
	Alice K. Williams	" " "	293	100 00
	E. A. Eggers	" " "	294	120 00
	Geo. B. Kauffman	" " "	295	80 00
	Benj. W. Snow	" " "	296	80 00
31	W. C. McCracken	" to April 1, '87	297	66 67
	E. C. Grove	" "	298	33 33
April 1	W. S. Devol	" March, '87, installm't	299	50 00
	F. W. Prentiss	" to April 1, '87	300	25 00
	Alexis Cope	" "	301	108 33
2	Anna Neill Scott	" March, '87, installm't	302	15 00
9	W. J. Green	" to April, '87	303	25 00
	A. H. Tuttle	Expenses to Cincinnati	304	6 75
11	Anna Neill Scott	W'k catalogue, geol. museum	305	20 25
	J. M. Stutz	Rep. cistern, Dr. Knight's res	306	9 75
	V. J. Emory	Salary March, '87, installm't	307	12 50
	P. Smith & Co	Photographic supplies	308	8 65
	Aston & Huff	Supplies, physical dep't	309	7 90
	H. D. Bishop	19¾ hrs. work "	310	3 95
	Bausch & Lamb Optical Co.	Supplies, "	311	9 00
	Col. Hock'g Coal & Iron Co.	On account of coal delivered	312	451 82
	E. H. Kellogg	27 gallons machine oil	313	27 50
	Adams Expess Co	Freight on packages	314	3 05

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887.				
April 11	R. O. Smith & Co	Lumber for workshops	315	$9 31
	W. C. McCracken	Freight on packages	316	63
	J. C. Tyler	Repairs, etc	317	2 45
	Geo. M. Maris & Co	Nails for workshop	318	1 05
	Lantern Publishing Co	Advertising University	319	37 00
	F. W. Christian	Supplies historical dep't	320	6 25
	W. U. Telegraph Co	Telegrams	321	51
	Cherrington & Robinson	Rubber stamp for treasurer	322	1 75
	Green, Joyce & Co	144 school crayons	323	11 52
	Ohio Furniture Co	2 dozen chairs	324	27 00
12	Col. Brass & St. Pipe W'ks	Pipes and fittings	325	11 55
	Col. Gas Light & Coke Co.	201 bushels coke	326	19 57
	J. H. Stettner	Repairing piano	327	6 50
	Central Ohio Paper Co	100 M sheets book paper	328	35 00
	Kilbourne, Jones & Co	Supplies, mechanical dep't	329	10 33
	Columbus Iron Works	" " "	330	7 06
	Union Manufacturing Co	1 6-in. chuck shell	331	7 00
	Columbus Rubber Co	Supplies, tubing	332	4 30
	A. H. Smythe	" stationery	333	3 05
	Wash. Townsend	27 days janitor, March, '87	334	40 50
	Central Union Tel. Co	Rent two instruments, etc	335	26 00
	American Express Co	Freight on package	336	10 95
	Columbus Water Works	Advance deposit	337	110 00
May 5	F. W. Prentiss	Salary to May 1, 1887	338	25 00
	Anna Neill Scott	" April, '87, installm't	339	15 00
	V. J. Emery	" " "	340	12 50
6	W. J. Green	" to May 1, 1887	341	25 00
7	Columbus post-office	300 1c postage stamps	342	3 00
11	Mark Francis	Services veterinary museum	343	40 00
	Amos Markey	Cleaning machinery	344	6 00
12	E. L. Clarke	210 hrs. work in clearing	345	29 40
	C. R. Rhoades	264 " "	346	36 96
	Wm. H. Holmes	214½ " "	347	30 03
	J. L. Clark	259½ " "	348	36 33
	G. C. Davis	78 " "	349	10 92
	W. R. Kinnear & Co	Supplies, chemical dep't	350	16 20
	Geo. C. Comstock	Lock	351	2 00
	W. R. Lazenby	Care of class-room	352	9 90
	J. Wiggins & Co.	Plot of grounds and plate	353	15 00
	T. V. Iliff	200 M lime	354	1 30
	J. M. Stutz	Repairs, Prof Tuttle's res	355	19 37
	Andrew Schwarz Co	Repairs	356	50
	Col. & H. C. & I. Co	On account coal delivered	357	139 21
	Forest City Pk'g Co	Supplies	358	64
	N. W. Jackson & Son	Rebinding and indexing	359	3 00
	S. R. Watt	Rep'rs Prof. Townshend's res	360	2 00
	Col. Brass & St. Pipe W'ks	Steam fittings	361	5 65
	N. Blake	Repairs dormitory	362	2 25
	Wells & Tracy	2 dozen brooms	363	4 30
	R. O. Smith & Co	Supplies, zoological dep't	364	3 75
	A. C. Berlin & Co	1 M class cards	365	3 00
	Geo. F. Wheeler	22 gallons oil	366	4 00
	N. S. Townshend	Expenses to Washington	367	41 00
	"	Expenses att'g farmers' inst	368	40 25
	Ohio State Journal Co	Printing circulars	369	5 00
	N. S. Townshend	" slips, etc	370	4 00
13	"	Frame for picture	371	5 00
	Gazette Printing Co	Printing	372	30 25
	Michigan Lubricating Co	1 portable lubricator	373	16 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887.				
May 13	Jas. Gardner, jr	2 clay retorts, etc	374	$52 50
	C. E. Skinner	18 hrs. work in mech. dep't	375	3 60
	R. B. Smith	Putting up machinery	376	3 00
	Hershiser & Snyder	Supplies, mechanical dep't	377	2 80
	Columbus Water Works	Water rent, 6 mos. toMay, '88	378	149 59
	M. F. Capron	Repairs	379	11 05
	A. H. Tuttle	Supplies, zoological dep't	380	8 75
	Kauffman, Lattimer & Co	Express charges on glassware	381	1 00
	A. H. Smythe	1 historical atlas	382	2 00
	Robert Clarke & Co	1 Lee Micromoters Vade Mecum	383	
16	Kauffman, Lattimer & Co	Supplies, pharmacy dep't	384	187 39
17	Alexis Cope	Services as bursar	385	200 00
31	"	Salary to June 1, 1887	386	108 33
June 2	V. J. Emery	" May, '87, installment	387	12 50
	F. W. Prentiss	" to June 1, 1887	388	25 00
	W. S. Devol	" May, '87, installment	389	50 00
	W. J. Green	" to June 1, 1887	390	25 00
4	Anna Neill Scott	" May, '87, installment	391	15 00
11	Columbus post-office	400 1c stamps	392	4 00
12	" "	Stamps for catalogues	393	35 00
22	The Makio	Advertising University	394	15 00
23	Mark Francis	Services veterinary museum	395	20 00
	Geo. C. Comstock	Salary June, '87, installment	396	225 00
	Geo. W. Knight	" " "	397	225 00
	W. A. Daugherty	Music for band	398	8 00
	A. H. Tuttle	Salary June, '87, installment	399	225 00
	H. A. Weber	" " "	400	225 00
	J. R. Smith	" " "	401	225 00
	E. A. Eggers	" " "	402	120 00
	Benj. F. Thomas	" " "	403	225 00
	C. N. Brown	" " "	404	140 00
	V. J. Emery	" " "	405	12 50
	Alice K. Williams	" " "	406	100 00
	Lantern Publishing Co	Advertising University	407	13 50
	S. C. Derby	Salary June, '87, installment	408	225 00
24	W. H. Hannum	Copying class records	409	9 20
	Columbus Post-office	200 2-ct. and 200 1-ct. stamps	410	60 00
	Alexis Cope	Salary to July 1, 1887	411	108 33
	The Critic	Advertising University	412	20 50
	G. H. Twiss	Supplies	413	60 20
27	Thos. B. Hunt	Repairs, Dr. Knight's res	414	7 50
	David O'Brine	Salary June, '87, installment	415	100 00
	S. W. Robinson	" " "	416	225 00
	Geo. W. McCoard	" " "	417	120 00
	S. A. Norton	" " "	418	225 00
	Jos. N. Bradford	" " "	419	100 00
	W. R. Lazenby	" " "	420	225 00
	N. W. Lord	" " "	421	100 00
	H. J. Detmers	" " "	422	120 00
	"	1 mule for dissection	423	2 00
	Thos. Mathew	Letter'g tablets, chem'l dept	424	4 80
	C. G. Newton	Making shelving	425	3 25
	A. P. Blocksom	Salary June, '87, installment	426	50 00
	A. H. Welsh	" " "	427	120 00
	N. S. Townshend	" " "	428	225 00
	"	Rep's, Prof. Townshend's res	429	10 19
	Columbus Record	Advertising veterinary clinic	430	4 40
	Hann & Adair	150 examination questions	431	1 40

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887.				
June 27	Strobridge Lithog. Co	Supplies, stat'y & diplomas	432	$65 00
	Columbus post-office	100 1-cent stamps	433	10 00
	A. H. Smythe	Supplies, stationery	434	2 40
	Geo. M. Maris & Co	" hardware	435	20 60
	Slade & Kelton	" lumber	436	62 29
	Siebert & Lilley	" stationery	437	16 75
	Hasbrook, Orr & Byers	" pitcher, etc., pres't	438	1 75
	Geo. M. Maris & Co	" hardware	439	9 15
	R. O. Smith & Co	" lumber	440	5 85
	J. & H. Berge	" mining departm't	441	4 00
	Col. Brass & St'm Pipe W's	" 12½ lbs. ingots copp	442	1 88
	Eimer & Amend	" chemical departm't	443	27 64
	Kauffman, Lattimer & Co.	" "	444	29 61
	J. F. Mellott	" battalion	445	1 96
	J. N. Iliff	20 m. lime	446	1 80
	Kelley & Co	Repairs, Dr. Knight's resid. Virginia military lands	447	5 00
	Webb & Jones	Carriage for president	448	8 00
	B. & O. Telegraph Co	Telegram	449	27
	Columbus Transfer Co	Freight and drayage	450	18 78
29	Columbus post-office	500 1-cent stamps, catalogues	451	5 00
	Anna Neill Scott	Salary June, '87, installment	452	15 00
	Benj. W. Snow	" " "	453	80 00
30	F. W. Prentiss	" to July 1, 1887	454	25 00
July 1	C. P. Sigerfoos	27 hrs. work, phys. dep't	455	6 75
2	Nitschke Bros	500 exam'n pap's, chem. dep	456	4 00
	"	Catalogues and slips	457	487 50
5	W. H. Scott	Salary June, '87, installment	458	300 00
7	W. S. Devol	" " "	459	50 00
	W. J. Greene	" to July 1, 1887	460	25 00
9	R. O. Smith & Co	Supplies, lumber	461	6 57
	Halm & Bellows Furn. Co.	50 doz. chairs, commencem't	462	37 50
	Miles, Bancroft & Sheldon	Ribbons for diplomas	463	3 08
	David Jones	Supplies, zool. dep't	464	62 90
	M. F. Capron	20½ hrs. work, stage build'g	465	4 50
	Kauffman, Lattimer & Co.	1 lb. cor. sublimate	466	80
	J. P. Taylor	Supplies, pharm. departm't	467	8 00
	Braun & Bruck	" phys'l departm't	468	4 07
	Bausch & Lamb Optical Co	" "	469	25 88
22	Jas. Washington	Repairs, 2½ days labor	470	8 75
	Wash. Townsend	" 11½ days helper	471	23 25
Aug. 2	F. W. Prentiss	Salary to August, 1887	472	25 00
	H. S. Fairbanks	Exc'ss fees p'd, winter t. '86–7	473	5 00
8	J. W. Atcherson	Carriages for trustees	474	12 00
	Alexis Cope	Salary to August 1, 1887	475	108 83
	Columbus post-office	Postage stamps	476	42 00
	U. S. Express Co	Freight on package	477	25
	R. Smith & Co	Supplies, phys'l dep't	478	9 45
	Cent'l U. Telephone Co	Rent time signal line to Sept. 30, 1887	479	25 25
	Nitschke Bros	Printing exam't'n quest's, etc	480	9 75
	J. A. McAuley	Supplies, phys'l dep't	481	5 00
	Geo. M. Maris & Co	" carpenter shop	482	15 70
	L. C. Walker	34 hrs., address'g catalogues	483	5 10
	Strobridge Litho. Co	5 parchment diplomas	484	5 00
	Halm & Bellows Furn. Co.	6 chairs	485	6 00
	Hann & Adair	Printing circulars, etc	486	18 85
	W. U. Telegraph Co	Telegram	487	25
	D. W. Groff	Freight and drayage	488	10 28

STATEMENT V—Continued.

Date.		To whom paid.	For what purpose.	No.	Amount.
1887.					
Aug.	3	Edward Orton	Supplies, geological dep't	489	$17 91
		W. H. Hannum	Services rendered	490	9 40
		W. A. Daugherty	2 musicians, commencemen'	491	6 00
		W. H. Scott	Supplies, stationery	492	13 93
		Door, Sash & Lumber Co	Repairs, Prof. Thomas' res. Virginia military lands	493	4 74
		M. F. Capron	Repairs, Prof. Thomas' res. Virginia military lands	494	2 25
		J. W. Stutz	Repairs, Prof. Thomas' res., Virginia military lands	495	47 75
	18	Dennis Ryan	Drayage	496	1 25
	23	Geo. B. Kauffman	Salary June, '87, installment	497	80 00
	29	W. J. Greene	" to September 1, 1887	498	50 00
	31	Alexis Cope	" " "	499	108 33
Sept.	1	F. W. Prentiss	" " "	500	25 00
		Margaret Parry	Cleaning buildings	501	35 00
	3	C. G. Newton	Repairs, Prof. Thomas' res	502	1 75
		Wash. Townsend	15 days, cleaning buildings	503	22 50
		W. S. Devol	Hauling for University	504	38 69
		W. C. McCracken	Cleaning buildings	505	36 28
	7	S. N. Webb	Repairs, carpentering, etc	506	4 14
		W. R. Kinnear & Co	" Prof. Tuttle's res	507	2 00
		M. F. Capron	" Prof. Thomas' res., Virginia military lands	508	6 58
		Wells & Tracy	Supplies, pails	509	1 47
		Geo. F. Wheeler	" soap, etc	510	10 73
		W. G. Dunn & Co	" 25 yards crash	511	1 19
		J. Dent	Repairs, cleaning vaults	512	50 00
		Slade & Kelton	Supplies, lumber	513	68 25
		Door, Sash & Lumber Co	" drafting board, etc	514	3 75
		Columbus Transfer Co	Freight and drayage	515	2 35
		Columbus Dispatch	Advertising for proposals	516	11 25
		Webb & Jones	Carriages for trustees	517	6 00
		Myers Bros	Supplies, stationery	518	3 25
		Siebert & Lilley	" "	519	1 50
		Hann & Adair	" "	520	12 45
		J. Wiggins & Co	2 copies Columbus Directory	521	6 00
		American Express Co	Freight on package	522	4 00
		W. H. Scott	Postage, express charges, etc.	523	6 25
		"	Traveling expenses	524	49 80
		Gazette Printing Co	Printing cards	525	1 50
		Geo. H. Twiss	Supplies, engineer'g dep't	526	76 05
		Col. Electric Supply Co	" physical "	527	1 25
		Eimer & Amend	" " "	528	35 27
		S. Hawkridge	" " "	529	48 49
		Jas. W. Queen & Co	"	530	2 00
		B. F. Thomas	" physical dep't	531	21 95
		Henry J. Green	" " "	532	24 25
		J. H. Berge	" agricult'l "	533	160 74
	17	Columbus post-office	500 2-cent, 300 1-cent stamps	534	13 00
	24	W. H. Scott	Salary Sept., '87, installment	535	300 00
		Edward Orton	" " "	536	225 00
		S. A. Norton	" " "	537	225 00
		N. S. Townshend	" " "	538	225 00
		A. H. Tuttle	" " "	539	225 00
		S. W. Robinson	" " "	540	225 00
		N. W. Lord	" " "	541	100 00
		S. C. Derby	" " "	542	225 00
		W. R. Lazenby	" " "	543	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887. Sept. 24	J. R. Smith	Salary Sept., '87, installment	544	$225 00
	H. A. Weber	" " "	545	225 00
	B. F. Thomas	" " "	546	225 00
	R. D. Bohannan	" " "	547	225 00
	Geo. W. Knight	" " "	548	225 00
	H. J. Detmers	" " "	549	120 00
	Chas. E. Kilbourne	" " "	550	50 00
	C. N. Brown	" " "	551	140 00
	Alice K. Williams	" " "	552	100 00
	E. A. Eggers	" " "	553	120 00
	Geo. W. McCoard	" " "	554	120 00
	J. N. Bradford	" " "	555	100 00
	A. H. Welsh	" " "	556	120 00
	Alexis Cope	" to October 1, 1887	557	108 33
Oct. 1	F. W. Prentiss	" " "	558	25 00
	W. S. Devol	" Sept. '87, installment	559	50 00
	W. C. McCracken	Amt. paid cleaning build'gs.	560	74 88
	Jos. P. Whitney	On account salary as assist't physical department	561	80 00
	Wash. Townsend	13 days' cleaning buildings	562	20 50
3	C. P. Sigerfoos	2½ days' visitors' attendant	563	4 50
	G. P. Grimsley	59 hrs. "	564	8 85
	C. E. Skinner	Repairs	565	5 55
	R. K. Beach	6 hrs. visitors' attendant	566	90
	Hershiser & Snyder	Supplies, mech'l dep't	567	13 50
	Richmond, Backus & Co	24 class registers	568	8 64
	Murphy & Hinman	1 window platform	569	8 00
	Capital City Mach. W'ks	Supplies, general	570	9 50
4	Geo. M. Maris & Co	" hardware	571	5 85
	"	" "	572	9 10
	W. U. Telegraph Co	Telegrams	573	5 68
	Hann & Adair	Supplies, stationery	574	21 70
	Volksfreund Publish'g Co.	Advertising University	575	4 00
	Remington Bros	" "	576	141 55
	Ohio Farmer	" "	577	23 94
	Ohio State Journal Co	" for bids for coal	578	12 00
	Ohio Sonntagsgast	Advert'g veter'y clinic, 9 mos	579	12 00
	Columbus Dispatch	" " "	580	17 00
	Am. Grange Bulletin	Advertising agricu'l courses	581	57 00
	Kauffman, Lattimer & Co	Supplies	582	1 26
	J. M. & W. Westwater	" gas fittings	583	34 05
	David Westwater	Repairs, Dr. Knight's res	584	1 80
	Thos. G. Neski	" plumbing	585	9 95
	J. M. Stutz	" Prof. Tuttle's residence, Virginia mil. lands	586	81 50
	H. H. Blunt	Repairs, Prof. Tuttle's residence, Virginia mil. lands	587	7 46
	M. F. Capron	Repairs, Prof. Tuttle's residence, Virginia mil. lands	588	22 07
	Col. Brass & St. Pipe W'ks	Supplies, pnmp, etc	589	20 00
5	W. J. Green	Salary to October, '87	590	25 00
10	Ralph W. Tyler	" night watchman	591	30 00
11	Columbus post-office	500 2c postage stamps	592	10 00
15	Chas. P. Sigerfoos	Salary Sept., '87, installment	593	15 00
	C. C. Oviatt	" " "	594	12 50
29	W. R. Lazenby	" Oct., '87, "	595	225 00
	J. R. Smith	" " "	596	225 00
	H. A. Weber	" " "	597	225 00
	Benj. F. Thomas	" " "	598	225 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887.				
Oct. 29	R. D. Bohannan	Salary Oct., '87, installment	599	$225 00
	Geo. W. Knight	" " "	600	225 00
	H. J. Detmers	" " "	601	120 00
	Chas. E. Kilbourne	" " "	602	50 00
	C. N. Brown	" " "	603	140 00
	Alice K. Williams	" " "	604	100 00
	E. A. Eggers	" " "	605	120 00
	Geo. B. Kauffman	" Sept., '87, "	606	200 00
	Geo. W. McCoard	" Oct., '87, "	607	120 00
	Jos. N. Bradford	" " "	608	100 00
	A. H. Welsh	" " "	609	120 00
	C. C. Oviatt	" " "	610	12 50
	C. P. Sigerfoos	" " "	611	15 00
	W. S. Devol	" " "	612	50 00
	W. J. Green	" to Nov. 1, '87	613	25 00
	Fred. Keffer	" Sept. & Oct.'87,intall'ts	614	160 00
	Alexis Cope	" to Nov. 1, 1887	615	108 33
	F. W. Prentiss	" "	616	25 00
Nov. 1	Olive B. Jones	" Sept. & Oct.,'87,install't	617	30 00
	Ralph W. Tyler	" to Nov.'87, nightwatch	618	30 00
7	A. H. Tuttle	Supplies, physiological dep't	619	4 70
	Hasbrook, Orr & Byers	" " "	620	20 00
	Jos. Zentmayer	" " "	621	31 50
	The Cornell & Phenegei Chemical Co	" " "	622	8 72
	Eimer & Amend	" " "	623	32 42
	Glock & Tallmadge	" " "	624	8 65
	Jas. W. Queen & Co	" " "	625	7 77
	Anna Neill Scott	Transcrib'g for geol. museum	626	14 00
	Harrison Cole	Supplies, civil engin'r'g dep't	627	65 00
	Geo. H. Twiss	" " "	628	32 50
	Kauffman, Lattimer & Co	" phys'l dep't	629	54 11
	Eimer & Amend	" agri'l chem. dep't	630	12 50
	Kauffman, Lattimer & Co	" "	631	75 65
	W. A. Daugherty	" for band	632	18 25
	W. G. Dunn & Co	" military dep't	633	1 00
	H. Braun & Sons	" "	634	11 72
	W. S. Devol, farm sup't	Repairs, fences, etc	635	55 00
	Slade & Kelton	Supplies, lumber	636	43 00
	Mast,Crowell&Kirkpatrick	Advertising University	637	39 20
	Nat. Stockman & Farmer	" "	638	21 84
	C. I. Felhousen & Co	" "	639	50 00
	A. N. Kellogg New'per Co	" "	640	66 00
	Druggist's Circular	" "	641	10 00
	E. O. Randall & Co	Repairs,Dr.Knight's,Va.M.L	642	14 50
	H. Braun & Sons	" " "	643	11 75
	John Benbow	" " "	644	26 25
	H. L. Newton	" " "	645	2 62
	Cen. Union Telephone Co	Rent, 2 instruments and toll to January 1, 1888	646	25 50
	W. U. Telegraph Co	Telegrams	647	3 87
	Columbus Water Works	Water rent to Nov. 1, 1887	648	169 40
	U. S. Express Co	Freight and drayage	649	2 95
	Geo. M. Maris & Co	Supplies, hardware	650	4 26
	Chas. Wheeler	Repairs	651	24 00

STATEMENT V—Concluded.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887. Nov. 7	A. H. Smythe	Stationery	652	$1 10
	The Halm-Bellows Fur. Co	Repairs	653	1 50
	Siebert & Lilley	Supplies, stationery	654	13 15
	Gazette Printing Co	Printing examination papers	655	5 00
	W. S. Devol, farm sup't	Hauling for University	656	44 82
	Total disbursement			$47,197 19
	By balance, cash in	treasurer's hands		7,439 62
				$54,636 81

REPORT OF THE FINANCE COMMITTEE.

To the Board of Trustees, Ohio State University:

The undersigned, your executive committee, in the absence of finance committee, have, in obedience to your instructions, examined the accounts and the vouchers of the treasurer, and carefully compared them with the records and vouchers in possession of the secretary, and hereby certify that the report of the treasurer, submitted to the board for the year ending November 15, 1887, is correct.

H. J. Booth,
Thomas A. Cowgill.

STATEMENT VI.

LIST OF EMPLOYES AND COMPENSATION.

In compliance with section 7 of the organic act, passed by the Legislature of Ohio, May 1, 1878, which requires a list of "the number of professors, officers, teachers and other employes, and the position and compensation of each, to be reported annually," I submit the following:

William H. Scott, President	$3,000 00
Edward Orton, Professor	2,250 00
Sidney A. Norton, Professor	2,250 00
Norton S. Townshend, Professor	2,250 00
Albert H. Tuttle, "	2,250 00
Stillman W. Robinson, "	2,250 00
Nathaniel W. Lord, "	1,000 00
Samuel C. Derby "	2,250 00
William R. Lazenby, "	2,250 00
Josiah R. Smith, "	2,250 00
Henry A. Weber, "	2,250 00
Benjamin F. Thomas, "	2,250 00
R. D. Bohannan, "	2,250 00
George W. Knight, "	2,250 00
Charles E. Kilbourne, "	500 00
H. J. Detmers, "	1,200 00

C. Newton Brown,	Assistant Professor	$1,400 00
Allice K. Williams	" "	1,000 00
Ernest A. Eggers,	" "	1,200 00
George B. Kauffman,	" "	1,000 00
Frederick Keffer,	" "	800 00
George W. McCoard,	" "	1,200 00
Joseph F. Whitney,	" "	800 00
Joseph N. Bradford,	" "	1,000 00
Albert H. Welsh,	" "	1,200 00
C. P. Sigerfoos,	" "	150 00
Alexis Cope,	Secretary	1,800 00
Frederick W. Prentiss,	Treasurer	300 00
Olive B. Jones,	Assistant Librarian	150 00
C. C. Oviatt,	Clerk to President	125 00
William McCracken,	Engineer	800 00
Edda C. Grove,	Fireman	400 00
William S. Devol,	Superintendent of Farm	500 00
W. J. Green,	Superintendent Gardens	300 00
Chas. A. Roth,	Florist	600 00
Total		$46,925 00

CATALOGUE

OF THE

OHIO STATE UNIVERSTY

FOR THE YEAR 1886-87.

1888.	SUNDAY.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY
JAN.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...
FEB.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	...	...	...
MARCH.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
APRIL.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	...	...	...	...	...
MAY.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...
JUNE.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	...	...	...	...	...	...	...

1888.	SUNDAY.	MONDAY.	TUESDAY	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
JULY.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	...	...	...	...
AUG.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...
SEPT.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	...	...	...	...	...	...
OCT.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	...	...	...
NOV.	...	...	...	...	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	...
DEC.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	...	...	...	...	...

1889.	SUNDAY.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY	SATURDAY.
JAN.	...	...	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	...	...
FEB.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	...	...
MARCH.	...	...	...	...	...	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	...	...	...	...	...	...
APRIL.	...	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	...	...	...	...
MAY.	...	...	...	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	...
JUNE.	...	...	...	...	...	...	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	...	...	...	...	...	...

ANNOUNCEMENTS.

		1888.
Winter term begins,	Wednesday,	January 4.
Celebration of Washington's Birthday,	Wednesday,	February 22.
Winter term ends,	Wednesday,	March 28.
Spring term begins,	Wednesday,	April 4.
Baccalaureate Sermon,	Sunday,	June 17.
Entrance examinations, 9 A. M.,	Monday, Tuesday,	June 18, 19.
Exercises of the Literary Societies,	Monday,	June 18.
Class day exercises,	Tuesday,	June 19.
Commencement,	Wednesday,	June 20.
Entrance examinations, 9 A. M.,	Monday, Tuesday,	September 10, 11.
Registration day,	Wednesday,	September 12.
Thanksgiving recess,	Wednesday to Monday,	Nov. 28 to Dec. 3.
Fall term ends,	Wednesday,	December 19.
		1889.
Winter term begins,	Wednesday,	January 2.
Celebration of Washington's Birthday.	Friday,	February 22.
Winter term ends,	Wednesday,	March 27.
Spring term begins,	Wednesday,	April 3.
Baccalaureate sermon,	Sunday,	June 16.
Entrance examinations, 9 A. M.,	Monday, Tuesday,	June 17, 18.
Exercises of the Literary Societies,	Monday,	June 17.
Class day exercises,	Tuesday,	June 18.
Commencement,	Wednesday,	June 19.

BOARD OF TRUSTEES.

HON. LUCIUS B. WING	Newark.
HON. THOMAS J. GODFREY	Celina.
HON. THOMAS A. COWGILL	Kennard.
HON. JOHN H. BRIGHAM	Delta.
HON. HENRY J. BOOTH	Columbus.
HON. HENRY B. PERKINS	Warren.
HON. RUTHERFORD B. HAYES	Fremont.

OFFICERS OF THE BOARD.

THOMAS A. COWGILL	*President.*
THOMAS J. GODFREY	*Vice-President.*
ALEXIS COPE	*Secretary.*
FRED. W. PRENTISS	*Treasurer.*

COMMITTEES OF THE BOARD.

EXECUTIVE.	FARM.	FINANCE.
L. B. WING,	R. B. HAYES,	T. J. GODFREY,
H. J. BOOTH,	L. B. WING,	R. B. HAYES,
T. A. COWGILL,	H. B. PERKINS,	H. B. PERKINS.

OFFICERS OF INSTRUCTION AND GOVERNMENT.

WILLIAM H. SCOTT, LL. D., University Grounds.
President and Professor of Philosophy.

EDWARD ORTON, PH. D., LL. D., 104 Twentieth Street.
Professor of Geology.

SIDNEY A. NORTON, PH. D., LL. D., 299 East Town Street.
Professor of General and Applied Chemistry.

NORTON S. TOWNSHEND, M. D., University Grounds.
Professor of Agriculture.

ALBERT H. TUTTLE, M. Sc., University Grounds.
Professor of Zoology and Comparative Anatomy.

STILLMAN W. ROBINSON, C. E., 1205 North High Street.
Professor of Mechanical Engineering.

NATHANIEL W. LORD, E. M., Hayden Block, E. Broad Street.
Professor of Mining and Metallurgy.

SAMUEL C. DERBY, M. A., Indianola Place.
Professor of the Latin Language and Literature.

WILLIAM R. LAZENBY, B. AG., University Grounds.
Professor of Botany and Horticulture.

JOSIAH R. SMITH, M. A., Indianola Place.
Professor of the Greek Language and Literature.

HENRY A. WEBER, PH. D., Eighth and Wesley Avenues.
Professor of Agricultural Chemistry.

BENJAMIN F. THOMAS, PH. D., University Grounds.
Professor of Physics.

GEORGE W. KNIGHT, PH. D., University Grounds.
Professor of History and Political Science.

HENRY J. DETMERS, M. V. D., Dennison Avenue.
Professor of Veterinary Surgery.

R. DANIEL BOHANNAN, B. Sc., C. E., E. M., King Avenue.
Professor of Mathematics and Astronomy.

CHAS. E. KILBOURNE, First Lieut. 2d Artillery, U. S. A., 299 Franklin Ave.
Professor of Military Science and Tactics, and Assistant Professor of Mathematics.

C. NEWTON BROWN, High Street and E. Woodward Avenue.
Associate Professor of Civil Engineering.

ALICE K. WILLIAMS, West Woodruff Avenue.
Associate Professor of the French Language and Literature.

ERNST A. EGGERS, 1174 North High Street.
Associate Professor of the German Language and Literature.

GEORGE B. KAUFFMAN, B. S., 60 Garfield Avenue.
Associate Professor of Pharmacy.

ALFRED H. WELSH, M. A., 70 South Third Street.
Associate Professor of the English Language and Literature.

GEORGE W. McCOARD, M. A., 37 King Avenue.
Assistant Professor of Mathematics and Latin.

JOSEPH N. BRADFORD, M. E., 21 South Garfield Avenue.
Assistant in Drawing and Mechanical Engineering.

JOSEPH T. WHITNEY, 1174 North High Street.
Assistant in Physics.

FREDERIC KEFFER. West Ninth Avenue.
Assistant in Chemistry.

CHARLES P. SIGERFOOS, University Club.
Assistant in Zoology and Comparative Anatomy.

OTHER OFFICERS.

PROFESSOR JOSIAH R. SMITH,
Secretary of the Faculty.

PROFESSOR SAMUEL C. DERBY,
Librarian.

OLIVE B. JONES,
Assistant Librairan.

CHARLES C. OVIATT,
President's Clerk.

PROFESSOR WILLIAM R. LAZENBY,
Superintendent of Grounds.

WILLIAM S. DEVOL, B. AG.,
Superintendent of Farm.

CHARLES A. ROTH,
Florist.

WILLIAM McCRACKEN,
Engineer.

OHIO AGRICULTURAL EXPERIMENT STATION.

OFFICERS AT THE UNIVERSITY.

CHARLES E. THORNE,
Director.

PROFESSOR WILLIAM R. LAZENBY,
Vice-Director.

PROFESSOR HENRY A. WEBER,
Chemist.

PROFESSOR HENRY J. DETMERS,
Veterinarian.

WILLIAM S. DEVOL, B. AG.,
Superintendent of Field Experiments.

WILLIAM J. GREEN,
Superintendent of Horticultural Experiments.

OHIO GEOLOGICAL SURVEY.

OFFICERS AT THE UNIVERSITY.

PROFESSOR EDWARD ORTON,
State Geologist.

PROFESSOR NATHANIEL W. LORD,
Chemist.

OHIO METEOROLOGICAL BUREAU.

OFFICERS AT THE UNIVERSITY.

PROFESSOR BENJAMIN F. THOMAS,
Director.

CHARLES E. KILBOURNE,
Secretary.

MOSES CRAIG,
Observer.

STANDING COMMITTEES OF THE FACULTY.

The President of the University is *ex-officio* Chairman of each of these Committees.

I. THE SCHOOL OF AGRICULTURE AND VETERINARY MEDICINE.

Professor LAZENBY, *Secretary*.

Professors TOWNSHEND, TUTTLE, ROBINSON, LORD, WEBER, DETMERS.

II. THE SCHOOL OF ENGINEERING.

Associate Professor BROWN, *Secretary*.

Professors ROBINSON, LORD, THOMAS, BOHANNAN, AND Associate Professor EGGERS.

III. THE SCHOOL OF SCIENCE.

Professor TUTTLE, *Secretary*.

Professors ORTON, THOMAS, BOHANNAN, AND Associate Professor EGGERS.

IV. THE SCHOOL OF ARTS AND PHILOSOPHY.

Professor DERBY, *Secretary*.

Professors ORTON, NORTON, SMITH, KNIGHT, AND Associate Professor WILLIAMS AND WELSH.

V. THE SCHOOL OF PHARMACY.

Professor NORTON, *Secretary*.

Professor TOWNSHEND AND Associate Professor KAUFFMAN.

DEGREES CONFERRED JUNE, 1887.

Charters, William F	New Lisbon	B. Ph.
Converse, Howard P	Columbus	B. Sc.
Corns, Harry	London	B. A.
Detmers, Fredericka	Columbus	B. Sc.
Emery, Vernon J	Napoleon	B. A.
Francis, Mark	Paddy's Run	D.V.M.
Hannum, William H	Lancaster	B. A.
Heath, Arthur T	Cuyahoga Falls	G. Ph.
Hazlett, Robert, Jr	Wheeling, W. Va	C. E.
Hunt, William F	Miamisburg	M. E.
Hyde, Wilby G	New Holland	B. A.
Krieger, Charles H	Columbus	G. Ph.
McPherson, William, Jr	Xenia	B. Sc.
Mullay, Annie	Columbus	B. Ph.
Myers, Joseph S	"	B. A.
Myers, Uriah H	"	E. M.
Payne, Halbert E	Fostoria	M. E.
Ray, Frank A	Jefferson	E. M.
Reeves, Archibald C	Dayton	C. E.
Scott, Daisy M	Columbus	B. A.
Scott, May M	"	B. A.
Taylor, Joseph R	Marietta	B. A.
Weidner, George F	Cuyahoga Falls	G. Ph.
Woodworth, Henry J	Jefferson	B. Sc.
Zaumseil, Oscar C	Ripley	C. E.

CATALOGUE OF STUDENTS.

RESIDENT GRADUATE.

May M. Scott	B. A.	Columbus.

THE SENIOR CLASS.

Aldrich, Chester H	B. A.	Pierpont.
Atkins, Gains G	B. A.	Columbus.
Ball, Fred S	B. Ph	Portsmouth.
Boyd, Emma	B. Ph	Plain City.
Brown, Frederick W	B. Ph	Zanesfield.
Capron, Marshall F	M. E.	Conneaut.
Cathcart, Josephine M	B. Sc.	Columbus.
Cellarius, Frederick J	C. E.	Dayton.
Crawford, William S	B. Ph	Cuyahoga Falls.
Fravel, George B	M. E.	Columbus.
Garrett, Howard T	M. E.	"
Gates, Harry M	C. E.	"
Hartwell, Arthur	M. E.	Xenia.
Hedges, Harry	B. A.	Urbana.
Hine, Lucius A	E. M.	Milan.
Kemmler, Edward A	C. E.	Columbus.
Lamme, Benjamin G	M. E.	Medway.
Mix, Edgar W	B. Sc.	Columbus.
Morrey, William T	B. A.	Chester Hill.
Raymund, Frank M	B. A.	Akron.
Scheibell, William O	E. M.	Mont Clair, N. J.
Scott, Emma	B. Sc.	Columbus.
Sharp, Charles C	C. E.	Sugar Grove.
Siebert, Wilbur H	B. A.	Columbus.
Thompson, Howard N	B. Ph	"
Wadsworth, F. L. Olcott	E. M.	Wellington.
Webb, Scott A	B. Ph	Jefferson.
Welch, Clark J	C. E.	Sandy Creek, N. Y.
Wilgus, James A	B. Ph	Conover.

THE JUNIOR CLASS.

Bloom, George	C. E.	Xenia.
Bownocker, John A	B. Sc.	Amanda.
Carle, Roscoe L	B. Sc.	Tiffin.
Caylor, Chauncey L	B. Sc.	Columbus.
Floto, Julius	C. E.	Cincinnati.
Gaines, Charles E	B. Ph	Columbus.
Garber, Alberta D	B. Ph	"
Gregg, Frank B	B. Ph	Springboro.
Griffin, Theodore	B. Sc.	Columbus.
Hagler, Howard	B. Sc.	Washington C. H.
Hall, Harry R	E. M.	Galion.
Heller, Albert H	C. E.	Wapakoneta.
Horton, Henry P	B. Ph	Pomeroy.

Jones, Jesse L	B. A	Martin's Ferry.
Kirker, Harry L	B. Sc	Ironton.
Lincoln, John C	M. E	Columbus.
Meek, William W	B. Ph	"
Mesloh, Charles W	B. A	New Bremen.
Miller, Harry F	M. E	Columbus.
Newton, Henry S	B. Sc	Newark.
Ozias, A. N	B. Sc	Columbus.
Rickey, Alla B	B. Ph	"
Sigerfoos, Charles P	B. Sc	Arcanum.
Smith, George A	B. Sc	Columbiana.

SOPHOMORE CLASS.

Arnold, Charles L	B. Ph	Milan.
Atkins, Charles G	M. E	Tiffin.
Bancroft, Fanny E	B. A	Columbus.
Basterdes, Ada M	B. Ph	"
Boyd, James G	B. Agr	Plain City.
Braun, Walter	C. E	Columbus.
Bricker, Lorin H	B. Sc	"
Callinan, William H	C. E	"
Clark, Emily L	B. A	"
Cole, George N	M. E	"
Craig, Moses	B. Sc	Rochester, N. Y.
Egbert, Knott C	B. Agr	Tiffin.
Ewing, Charles E	B. A	West Baltimore.
Feicht, Russell S	M. E	Dayton.
Fox, Charles P	B. Agr	Springboro.
Fox, Gertrude	B. Sc	Columbus.
Grimsley, Perry	B. A	"
Haner, J. Leonard	B. Ph	Plain City.
Lamb, Louis A	E. M	Akron.
Large, Joseph H	C. E	Freedom.
Laughlin, Hugh C	B. A	Belle Centre.
Mershon, Ralph D	M. E	Zanesville.
Miller, Charles	B. A	Duncan's Falls.
Mitchell, Harry S	B. Sc	London.
Moodie, Alice H	B. A	Columbus.
Morrey, Charles B	B. A	Chester Hill.
Needels, Mana R	B. Ph	Groveport.
Noel, Elijah P	B. Ph	Portsmouth.
Oviatt, Charles C	B. Ph	Richfield.
Pocock, Carrie A	B. A	Columbus.
Ritchey, Joseph C	B. Sc	Lafferty.
Rudkin, John J	B. A	Kinsman.
Scott, Bertha	B. Ph	Columbus.
Sigerfoos, Edward	B. Ph	Arcanum.
Skinner, Charles E	M. E	Redfield.
Smith, Carl C	B. Ph	Chester Hill.
Talbot, Nellie	B. A	Columus.
Weaver, Mary L	B. Ph	"
Yeazell, Harry A	B. A	Springfield.
Young, Richard B	B. A	Columbus.

FRESHMAN CLASS.

Allen, Jesse H	M. E	Columbus.
Beach, Margaret A	B. Ph	"
Beach, Robert K	B. Ph	Kelloggsville.
Bill, Howard	B. Ag	Averitte.
Blakiston, Mary	B. Ph	Columbus.
Bownocker, Lewis	M. E	Amanda.
Boyd, James E	B. Sc	Brush Creek.
Brown, Morton S	M. E	Columbus.
Burnham, Louis C	B. Agr	Irwin.
Burns, James F	C. E	Dayton.
Chapin, Helen	C. E	Columbus.
Clark, William H	B. A	Middleport.
Claypole, Charlotte	B. Ph	Columbus.
Cowen, Clinton	B. Ph	Newtonville.
Crawford, Norman	B. Sc	Cuyahoga Falls.
Doney, Carl G	B. Sc	Columbus.
Dudley, Stowell B	C. E	Henrietta.
Farmer, Maude G	B. Ph	Columbus.
Gale, Frank H	B. Sc	"
Goddard, Loring H	C. E	Dunham.
Gould, Joseph E	M. E	St. Simon's Mills, Ga.
Gould, Theodore H	B. A	London.
Hubbard, Ralph N	B. Sc	Columbus.
Jennings, Frank W	C. E	"
Jones, Aaron W	B. Sc	"
Kershaw, Francis S	B. A	"
Kiesewetter, Louis F	C. E	"
Lemert, Helen O	B. A	Napoleon.
Lunn, Leonard J	C. E	Steubenville.
Martin, Edwin D	B. Ph	Xenia.
Mathews, Emerson W	B. A	Columbus.
McBurney, James R	B. Sc	Cambridge.
McCloud, Charles F	B. A	Marysville.
McCoy, Charles C	B. Agr	Washington C. H.
McIntire, Rollins	B. A	Mt. Vernon.
Mock, George H	B. Sc	Columbus.
Moses, Martha	B. Ph	"
Mounts, James L	B. Ph	Morrow.
Norris, Jewett L	B. Sc	Columbus.
Piper, Lida J	B. Sc	"
Phillips, Frank C	B. Ph	Zanesville.
Pomerene, Frank E	B. Ph	Coshocton.
Pratt, Carey S	C. E	Quincy.
Queal, Michael	B. A	Milford.
Ray, William M	C. E	New Philadelphia.
Rees, William D	B. A	Columbus.
Ruppersburg, Emma A	B. Sc	"
Smith, Roscoe B	B. Ph	"
Smith, Myron A	B. Ph	Bartlett.
Stillson, Dwight M	B. Agr	Kent.
Storer, Norman W	M. E	Orangeville.
Thompson, Carmie A	B. Ph	Ironton.
Thompson, James E	B. Sc	New Carlisle.
Weybrecht, Charles C	B. Sc	Alliance.
Whitacre, Horace J	B. Sc	Morrow.

White, David S	B. Agr	Dunham.
Williams, Frances L	B. A	Chillicothe.
Wood, Francis C	B. Sc	Columbus.

SPECIAL.

Brown, Edward L. (A. B., Capital Univ.)	Columbus.
Byers, Bertha	“
Doherty, Mary	“
Gordon, George	“
High, Frank C	Bucyrus.
Jones, Olive B	Newark.
Patchell, Owen W	Perin's Mills.
Sharp, Amor W	Columbus.

STUDENTS IN VETERINARY MEDICINE.

Bennett, Samuel E	First year	East Liverpool.
Daugherty, William A	“	Avondale.
Ellis, Charles	Second year	Springboro.
Jameson, Charles E	Preparatory	North Washington.
Lavery, William T	Second year	South Salem.

STUDENTS IN PHARMACY.

Armstrong, William H	Second year	Delaware.
Caton, Charles W		Chesterville.
Eberly Charles E	First year	Columbus.
Foljambe, Theodore D	“	Jefferson.
Fisher John C	Second year	Portsmouth.
Hancock, David R	“	Chillicothe.
Mason, George F	First year	Groveport.
Miller, Daniel E	“	Dayton.
Owen, George F	“	Columbus.
Peck, Frank H	Second year	“
Richards, B. W	“	Delaware.
Wendt, William C	“	Columbus.

STUDENTS IN THE SHORT COURSE IN AGRICULTURE.

Baker, William H	First year	Utica.
Bell, Lyman A	“	Circleville.
Cookson, John H	“	Redfield.
Cox, Emory L	“	Rich Hill.
Dun, Charles E	“	Dublin.
Frederick, Ira L	“	Washingtonville.
Gibson, Orville	Veterinary Preparatory	Good Hope.
Hegler, Orris	First year	Washington C. H.
Howard, Otto N	“	Milford Centre.
Markey, Amos	Second year	West Alexander.
Markey, Orange	“	“
McAllen, Robert W	First year	Farnellsburg.
Nickerson, Clark	“	New Burlington.
Rane, Frank W	“	Whitmore Lake, Mich.
Richardson, Hamilton H	“	Brooklyn.
Sherwood, Andrew E	“	Plain City.
Treat, Henry W	“	Tallmadge.
Wilkins, Howard L	Second year	Washington, D. C.
Wood, Daniel C	First year	Wilmington.

SECOND PREPARATORY CLASS.

Abbot, Harry J.	Columbus.
Alexander, St. Clair	Bridgeport.
Blunt, Horace H	Xenia.
Bownocker, Louis C.	Amanda.
Brotherton, B. E	Cedarville.
Buss, Albert C	New Breman.
Cathcart, Harlod M	West Milton.
Charter, Charles E.	De Kalb, Illinois.
Chessell, George W	Martin's Ferry.
Cook, John	Columbus.
Davis, Jessie	"
Doak, Ella C	"
Dungan, Irvine L.	Jackson.
Evans, William H	Marble Cliff.
Evans, William L	Columbus.
Eylar, Albert S. J.	West Union.
Fairbanks, Edward T.	Plain City.
Fahnestock, Samuel B	———.
Fischer, William	Columbus.
Goodell, Ralph C.	Columbus.
Grether, John D.	"
Gruen, Frederick C.	"
Haner, William H.	Plain City.
Hatcher, Edmund B	Columbus.
Howard, Edward D	"
Hutchinson, Eberly	"
Innis, Harry	"
Kershaw, Samuel C	"
Kilbourne, Russell	"
Knopf, Herbert K.	"
Leavitt, John C	Leetonia.
Lehman, Henry W	Winchester.
Long, Charles C	Steubenville.
Martin, Percy	Columbus.
McBurney, James R	Cambridge.
McCarter, Edward B.	"
McGurer, Flavia A.	Columbus.
Morehead, Warren K	Xenia.
Morrison, Samuel.	Columbus.
Mulligan, Anna B.	"
Nesbitt, John C.	Arcanum.
Newton, Chauncey G.	Columbus.
Nieuvahner, John H	Jackson.
O'Kane, Sadie C	Columbus.
Olds, Charles G.	Sandusky.
Pocock, Madeline.	Columbus.
Potter, Joseph D.	"
Polk, Walter C.	New Vienna.
Robinson, Charles W	Columbus.
Robinson, Eckka M.	Columbus.
Roy, David T.	Glen Roy.
Schueller, Erwin W.	Columbus.
Slyh, Almeda F.	"

Stayman, Guy L	Delaware.
Stinebaugh, Isaac L	Rockaway.
Taylor, John W	Willoughby.
Tryon, H. H	"
Webster, Charles A	Denver.
Wood, Willard	Columbus.
Woodborne, Edwin S	Urichsville.

FIRST PREPARATORY CLASS.

Abbott, Daisy	Columbus.
Baker, Wm. H	Utica.
Barnes, Chas. M	Columbus.
Beck, Authur A	"
Bone, John H	McConnellsville.
Bruck, John P	Columbus.
Carter, James H	De Kalbe, Illinois.
Challen, James R., Jr	Jacksonville, Fla.
Crooks, Charles	Van Wert.
Coulter, Ernest K	Columbus.
Doty, Wilson K	"
Dunham, J. Dudley	"
Fairbanks, Harry G	"
Ferris, George F	Sandusky.
Forshee, William E	Columbus.
Foster, Rollin G	"
Gale, Cora C	"
Gibson, Thomas B	Stockport.
Gibson, Ralph A	Batesville.
Guerin, Mattie	Columbus.
Guerin, William E	"
Guy, Charles P	Mechanicsburg.
Hagerman, Stanley	Lebanon.
Henderson, William M	McConnellsville.
Hermes, Wesley C	Portsmouth.
Hogan, Timothy S	Wellston.
Howard, J. W	Columbus.
Hagler, Ray	Washington C. H.
Jenkins, Lizzie	Columbus.
Kennedy, Arthur	"
Kilbourne, Charles E	"
Kilbourne, George B	"
Kiner, Laura M	"
Landis, Robert M	"
Lanman, William K	"
Levering, Orpheus D	Woodview.
Linen, Edwin T	Columbus.
McConnell, Frank J	"
Merrill, Louise A	"
Mullay, Patrick H	"
Mulligan, Margaret H	"
Myers, Roy V	Louisville.
Palmer, Walter K	Columbus.
Peters, Augustus T	"
Phillips, Edward D	"
Pugh, Lawrence C. W	"

Raudabaugh, Richard	Celina.
Robinson, Ernest G	Columbus.
Robinson, Charles W	"
Romans, William P	"
Roy, Flora	Glen Roy.
Scott, Herbert	Columbus.
Seymour, Parker M	"
Shedd, Lester	"
Skidmore, James E	Magnetic Springs.
Sloan, Edwin R	Lonaconing, Maryland.
Slough, Charles	Lithopolis.
Smith, Clyde Van	Shaw's Crossing.
Stone, John C	Columbus.
Stinsman, Franklin	Fletcher.
Thompson, Obela V	Deavertown.
Turner, Arthur M	Sciotoville.
Turner, Edward C	Columbus.
Watson, Robert J	London.
Weidner, Perry W	Dayton.
Wilcox, Calvin P	La Grange.
Wilkinson, Christopher	Columbus.
Wright, Frank L	London.

IRREGULAR PREPARATORY CLASS.

Allen, Virgil D	Columbus.
Betts, Arlington N	Bettsville.
Boyd, James H	Lonaconing, Maryland.
Case, William E	Elmwood.
Heines, William H	Cambridge.
Hunt, Minnie Rose	Columbus.
Hynes, Mark V	Overpeck.
Kellogg, William V	Columbus.
McCollock, George C	Bellefontaine.
Oster, Otto	Tiffin.
Patterson, Presley C	Cambridge.
Pedlow, Edward B	Ravenna.
Rees, Blanche	Columbus.
Smith, Roscoe B	"
Steckel, Archibald	Tiffin.
Treat, Hiram B	Tallmadge.
Wilcox, Calvin P	La Grange.
Wood, Edgar L	Columbus.
Wright, Charles H	Denver, Col.
Wright, Mrs. Emma	"

SUMMARY.

Resident Graduate		1
Under Graduates—		
Seniors	29	
Juniors	24	
Sophomores	40	
Freshmen	58	
Special	8	
		159

In Veterinary Medicine	5	
In Pharmacy	12	
In Short Agricultural Course	19	
		36
Preparatory—		
Second year	60	
First year	68	
Irregular	20	
		148
Total		343

ROSTER OF THE BATTALION.

FALL TERM, 1887.

Lieutenant C. E. Kilbourne, 2d U. S. Artillery, Commandant.

Field.

Lieutenant-Colonel	H. Hagler.
Major	W. S. Crawford.

Staff.

Adjutant	Capt. R. L. Carle.
Quartermaster	Capt. T. L. Griffin.
Sergeant-Major	E. Sigerfoos.
Quartermaster-Sergeant	F. S. Kershaw.

Band.

Leader	Sergeant J. R. McBurney.
Drum Major	Sergeant J. D. Norris.
Sergeant	C. Ellis.

"A" Company.

Captain	J. C. Ritchey.
First Lieutenant	H. H. Ward.
Second Lieutenant	A. U. Betts.
First Sergeant	G. E. McColloch.
Sergeant	F. B. Gregg.
"	P. Grimsley.
"	S. C. Kershaw.
Corporal	C. G. Newton.
"	L. C. Burnham.
"	J. L. Mounts.
"	O. Otter.

"B" Company.

Captain	H. R. Hall.
First Lieutenant	K. C. Egbert.
Second Lieutenant	L. H. Goddard.

First Sergeant	H. J. Whitacre.
Sergeant	J. S. Cook.
"	W. V. Kellogg.
"	V. D. Allen.
Corporal	C. C. McCoy.
"	H. A. Yeazell.
"	A. C. Buss.
"	P. Martin.

"C" Company.

Captain	R. B. Smith.
First Lieutenant	L. F. Kiesewetter.
Second Lieutenant	J. D. Potter.
First Sergeant	H. L. Wilkins.
Sergeant	F. C. High.
"	W. D. Rees.
"	G. N. Cole.
Corporal	R. S. Goodell.
"	A. Steckel.
"	N. W. Storer.
"	C. S. Arnold.

"D" Company.

Captain	J. E. Thompson.
First Lieutenant	M. A. Smith.
Second Lieutenant	G. H. Mock.
First Sergeant	R. D. Mershon.
Sergeant	F. H. Gale.
"	L. A. Lamb.
"	W. F. Lavery.
Corporal	D. S. White.
"	R. S. Feicht.
"	C. E. Carter.
"	J. E. Gould.

COURSES OF STUDY.

I—GENERAL COURSES.

FOR THE DEGREE OF BACHELOR OF ARTS.

THE FRESHMAN YEAR.

FALL TERM.—Required: **Latin**, Livy, with exercises in Latin Composition, *five hours a week;* **Greek**, Goodwin's Grammar and White's First Lessons, *five hours a week;* **Chemistry**, lectures and Norton's Chemistry, *four hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week.*

WINTER TERM.—Required: **Latin**, Ovid, *five hours a week;* **Greek**, Goodwin's Grammar and White's First Lessons, Xenophon's Anabasis, Book I, *five hours a week.* **Chemistry**, lectures and Norton's Chemistry, *two hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week.*

Elective: **Mathematics**, Olney's University Algebra, *three hours a week; or* **Mineralogy**, Dana's Mineralogy, *three hours a week.*

SPRING TERM.—Required: **Latin**, The Odes of Horace, *five hours a week;* **Greek**, Xenophon's Anabasis, Books II and III, *five hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week.*

Elective: **Mathematics**, Wentworth's Analytic Geometry, *three hours a week; or* **Chemistry**, lectures and Norton's Chemistry, *four hours a week.*

THE SOPHOMORE YEAR.

FALL TERM.—Required: **Latin**, The Histories of Tacitus, with lectures on Roman History, *three hours a week;* **Greek**, Xenophon's Memorabilia, with exercises in Greek Composition, *three hours a week;* **English**, English B, March's Anglo-Saxon Grammar and Reader, *two hours a week.* **Rhetoricals.**

Elective: *Eight hours a week,* chosen from the following studies: **Chemistry**, Qualitative Analysis, etc., *five hours;* **Physics**, (1) lectures and Anthony and Brackett's Physics, *three hours;* **Botany**, Wood's Botany and Beal's Grasses, *two hours;* **Physiology**, lectures, Martin's Human Body, and Practical Anatomy, *three hours;* **Comparative Anatomy**, *three hours a week;* **Free-hand drawing**, *one hour.*

WINTER TERM.—Required: **Latin**, Terence, with Lectures on Latin Literature, *three hours a week;* **Greek**, Selections from Herodotus' Greek History, *three hours a week;* **English**, English B, Brooke's Primer of English Literature, *two hours a week.* **Rhetoricals.**

Elective: The same as in the Fall Term.

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(1) Students electing Physics must have obtained credit for the elective Mathematics of the Freshman year.

Spring Term.—Required: **Latin**, Epistles of Horace, Latin Literature, *three hours a week;* **Greek**, Homer's Odyssey, Greek Literature, *three hours a week;* **English**, English B, Brooke's Primer of English Literature, *two hours a week.* **Rhetoricals.**

Elective: The same as in the Fall Term.

THE JUNIOR YEAR.

Fall Term.—Required: **Greek**, Thucydides, with lectures on Greek Literature, *three hours a week;* **Psychology**, Sully's Psychology, *three hours a week;* **Latin**, Quintilian, Book X, *two hours a week;* **Constitution of the United States**, lectures, *two hours a week.* **Rhetoricals.**

Elective: *Five hours a week*, chosen from the following studies: **German**, Brandt's German Grammar, easy prose reading, *five hours;* **French**, Borel's Grammaire Française, *five hours;* **Chemistry**, laboratory work, *five hours;* **Physics**, laboratory work, *five hours;* **Botany**, laboratory work, *five hours;* **Zoology**, laboratory work in General Zoology or Histology, *five hours;* **History**, History A, (¹) Hallam's Middle Ages (Student's edition) and Lodge's History of Modern Europe, with lectures, *three hours;* History C, (²) seminary work, *two hours;* **English**, English C, Masterpieces of English Literature, *two hours;* **Botany**, Wood's Botany and Beal's Grasses, *two hours.*

Winter Term.—Required: **Greek**, Plato's Apology and Crito, essays on Greek Philosophy, *three hours a week;* **Psychology**, Sully's Psychology, *three hours a week;* **Latin**, Martial, Select Epigrams, *two hours a week;* **Constitution of the United States**, Cooley's Constitutional Law, *two hours a week;* **Rhetoricals.**

Elective: The same as in the Fall Term.

Spring Term.—**Greek**, Demosthenes' Olynthiacs, with lectures on the Attic Orators, *three hours a week;* **Ethics**, Calderwood's Moral Philosophy, *three hours a week;* **Latin**, Mediæval Latin, *two hours a week;* **Constitution of the United States**, Johnston's American Politics, *two hours a week.* **Rhetoricals.**

Elective: The same as in the Fall Term.

THE SENIOR YEAR.

Fall Term.—Required: **Greek**, Homer's Iliad, with lectures on Epic Poetry, *three hours a week;* **Logic**, Fowler's Deductive Logic, *three hours a week;* **Political Economy**, Laughlin's Edition of Mill's Political Economy, *two hours a week.*

Elective: *Seven hours a week*, chosen from the following studies: **Chemistry**, laboratory work, *five hours;* **Physics**, laboratory work, *five hours;* **Botany**, laboratory work, *five hours;* **Zoology**, laboratory work in General Zoology or Histology, *five hours;* **Geology**, lectures on the geology and paleontology of Ohio, with field practice, *five hours;* **French**, selections from the classic dramatists, with exercises in composition, *three hours;* **German**, History of German language and literature, *three hours;* **History**, History A, (³) Hallam's Middle Ages (Student's edition) and Lodge's History of Modern Europe with lectures, *three hours;* History C, (⁴) seminary work, *two hours;* **Greek**, lectures on Greek Art, *two hours;* **Philosophy**, lectures on Recent Philosophy, *two hours.*

(¹) History B, Causes and Effects of the French Revolution, and Political and Constitutional History of England, alternates with History A, and will be given instead of it in the year 1888-89.

(²) History C must be preceded or accompanied by the course in Constitution of the United States.

(³) History B, Causes and Effects of the French Revolution, and Political and Constitutional History of England, alternates with History A, and will be given instead of it in the year 1888-89.

(⁴) History C, must be preceded or accompanied by the course in the Constitution of the United States.

WINTER TERM.—**Greek**, Sophocles' Antigone, *three hours a week*; **Logic**, Inductive Logic, *three hours a week*; **Political Economy**, Laughlin's Edition of Mill's Political Economy, *two hours a week.*

Elective: The same as in the Fall Term.

SPRING TERM.—**Greek**, Pindar's Triumphal Odes, lectures on Greek Etymology, *three hours a week*; **History of Philosophy**, Schwegler's History of Philosophy, with lectures, *three hours a week*; **Political Economy**, Laughlin's Edition of Mill's Political Economy, *two hours a week.*

Elective: The same as in the Fall Term, except that **Astronomy**, Newcomb and Holden's Astronomy, Briefer Course, is substituted for **Geology**.

FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

THE FRESHMAN YEAR.

The studies are the same as in the Freshman year of the course for the degree of Bachelor of Arts, except that **French** is substituted for **Greek**, as follows:

FALL TERM.—Borel's Grammaire Française, *five hours a week.*

WINTER TERM.—Borel's Grammaire continued; Masson's French Classiscs, *five hours a week.*

SPRING TERM.—Masson's French Classics, *five hours a week.*

THE SOPHOMORE YEAR.

The studies are the same as in the Sophomore year of the course for the degree of Bachelor of Arts, except that **French** is substituted for **Greek**, as follows:

FALL TERM.—Selections from the classic dramatists, with exercises in composition, *three hours a week.*

WINTER TERM.—Modern French prose, with lectures on French Literature, *three hours a week.*

SPRING TERM.—Selections from the classic dramatists, with lectures on French Literature, *three hours a week.*

THE JUNIOR YEAR.

The required studies are the same as in the Junior year of the course for the degree of Bachelor of Arts, except that **History** is substituted for **Greek, as follows:**

Hallam's Middle Ages (Student's edition) and Lodge's History of Modern Europe, with lectures, *three hours a week throughout the year.*

The elective studies are the same as in the Junior year of the course for the degree of Bachelor of Arts, with the exception of **History, A**, which, in this course, is required, and **French**, which is omitted.

THE SENIOR YEAR.

The required studies are the same as in the Senior year of the course for the degree of Bachelor of Arts, except that **History**, History B, is substituted for **Greek**, as follows:

For the first half year: Causes and Effects of the French Revolution, with text-book, lectures, and reading, *three hours a week.* For the second half year: The Political and Constitutional History of England, with text-book, lectures, and reading, *three hours a week.*

The elective studies are the same as in the Senior year of the course for the degree of Bachelor of Arts, except that **French** and **Greek** are omitted.

FOR THE DEGREE OF BACHELOR OF SCIENCE.

THE FRESHMAN YEAR.

FALL TERM.—**French**, Borel's Grammaire Française, *or* **German**, Brandt's German Grammar, easy prose reading, *five hours a week;* (1) **Chemistry**, lectures and Norton's Chemistry, *four hours a week;* **Mathematics**, Wells' Trigonometery, *three hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week;* **Botany**, Wood's Botany and Beal's Grasses, *two hours a week.*

WINTER TERM.—**French**, Borel's Grammaire continued, Masson's French Classics, *or* **German**, Brandt's Grammar continued, and easy prose reading, *five hours a week;* **Mathematics**, Olney's University Algebra, *three hours a week;* **Mineralogy**, Dana's Mineralogy, *three hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week;* **Botany**, Wood's Botany and Beal's Grasses, *two hours a week;* **Chemistry**, lectures and Norton's Chemistry, *two hours a week.*

SPRING TERM.—**French**, Masson's French Classics, *or* **German**, Brandt's Grammar, German fiction, *five hours a week;* **Chemistry**, lectures and Norton's Chemistry, *four hours a week;* **Mathematics**, Wentworth's Analytic Geometry, *three hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week;* **Botany**, Wood's Botany and Beal's Grassss, *two hours a week.*

THE SOPHOMORE YEAR.

FALL TERM.—Required: **Physics**, Anthony and Brackett's Physics, *three hours a week;* **French**, scientific prose, *two hours a week;* **Physiology**, lectures, Martin's Human Body, and Practical Anatomy, *three hours a week;* **Free-Hand Drawing**, *one hour a week.* **Rhetoricals.**

Elective: *Seven hours a week,* chosen from the following studies: **Chemistry**, Qualitative Analysis, etc., *five hours;* **Botany**, laboratory work, *five hours;* **Mathematics**, Calculus and Analytic Geometry, *five hours;* **Comparative Anatomy**, *three hours;* **English**, English B, Brooke's Primer of English Literature, *two hours;* **Constitution of the United States**, lectures, *two hours;* **German**,(2) scientific prose, *two hours.*

WINTER TERM.—**The studies of the Fall Term continued, except that Cooley's Constitutional Law is substituted for lectures on the Constitution of the United States.**

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(1) Students who enter as Freshmen from schools other than the Preparatory department, with Latin as their preparatory language, will take German in the Freshman and Sophomore years: other students will take French.

(2) Open to students who have had two years of German.

Spring Term.—The studies of the Winter Term continued, except that Johnston's American Politics is substituted for Cooley's Constitutional Law, and modern French prose for scientific prose.

THE JUNIOR YEAR.

Fall Term.—Required: **Psychology**, Sully's Psychology, *three hours a week;* **Political Economy**, Laughlin's Edition of Mill's Political Economy, *two hours a week.* **Rhetoricals.**

Elective: *Ten hours a week* (of which at least five shall be in science), chosen from the following studies: **Chemistry**, laboratory work, *five hours;* **Physics**, laboratory work, *five hours;* **Botany**, laboratory work, *five hours;* **Zoology**, lectures and laboratory work, *five hours;* **Histology**, lectures and laboratory work, *five hours;* **French**, Borel's Grammaire Française and reading, *five hours;* **Mathematics**, special work in higher Mathematics, *three hours;* **History**, History A,(1) Hallam's Middle Ages (Student's edition) and Lodge's History of Modern Europe, with lectures, *three hours; or* History B, Causes and Effects of the French Revolution, *three hours;* **English**, English B, Brooke's Primer of English Literature, *two hours.*

Winter Term.—The studies of the Fall Term continued; in History B, the Political and Constitutional History of England is taken up.

Spring Term.—The studies of the Winter Term continued, except that **Ethics**, Calderwood's Moral Philosophy, is substituted for **Psychology.**

THE SENIOR YEAR.

Fall Term.—Required: **Geology**, Le Conte's Elements of Geology, *five hours a week.*

Elective: *Ten hours a week* (of which at least five shall be in science), chosen from the following studies: **Chemistry**, laboratory work, *five hours;* **Physics**, laboratory work, *five hours;* **Botany**, laboratory work, *five hours;* **Zoology**, lectures and laboratory work, *five hours;* **Histology**, lectures and laboratory work, *five hours;* **Logic**, Fowler's Deductive Logic, *three hours;* **History**, History A, (1) Hallam's Middle Ages (Student's edition) and Lodge's History of Modern Europe with lectures, *three hours;* History C,(2) seminary work, *two hours;* **Constitution of the United States**, lectures, *two hours;* **English**, English C, Masterpieces of English Literature, *two hours;* **French**, *two hours.*

Winter Term.—The studies of the Fall Term continued; in History B, the Political and Constitutional History of England is taken up.

Spring Term.—The studies of the Winter Term continued, except that **Astronomy**, Newcomb and Holden's Astronomy, Briefer Course, is substituted for **Geology**, and **History of Philosophy**, Schwegler's History of Philosophy, with lectures, is substituted for **Logic.**

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(1) History B, Causes and Effects of the French Revolution, and Political and Constitutional History of England, alternates with History A, and will be given instead of it in the year 1888-89.

(2) History C, must be preceded or accompanied by the course in Constitution of the United States.

TECHNICAL COURSES.

FOR THE DEGREE OF BACHELOR OF AGRICULTURE.

THE FRESHMAN YEAR.

FALL TERM.—**Agriculture**, Emerson and Flint's Agriculture, *three hours a week;* **Domestic Animals**, Allen's Domestic Animals, *four hours a week;* **Diseases of Domestic Animals**, Stone's Elements of Medicine, *three hours a week;* **Anatomy**, lectures, *three hours a week;* **Horticulture**, lectures and practical work, *three hours a week.*

WINTER TERM.—**Physiology**, lectures, with Walker's Physiology, *five hours a week;* **Agriculture**, Johnson's How Crops Grow, *three hours a week;* **Stock Feeding**, Stewart's Feeding of Animals, *four hours a week;* **Materia Medica**, Bruce's Materia Medica, *three hours a week.*

SPRING TERM.—**Horticulture**, lectures and practical work, *five hours a week;* **Algebra**, Wentworth's Elementary Algebra, *four hours a week;* **Stock Breeding**, Miles' Stock Breeding, *four hours a week;* **Particular Diseases**, Farmer's Veterinary Adviser, *three hours a week.*

THE SOPHOMORE YEAR.

FALL TERM.—**Agricultural Chemistry**, lectures and laboratory work, *five hours a week;* **Botany**, lectures and laboratory work, *five hours a week;* **Algebra**, Wentworth's Elementary Algebra, *five hours a week.*

WINTER TERM.—**Botany**, lectures and laboratory work, *five hours a week;* **Geometry**, Wentworth's Geometry, *five hours a week;* **History**, Johnston's History of the United States, with lectures, *five hours a week.*

SPRING TERM.—**Agricultural Chemistry**, lectures and laboratory work, *five hours a week;* **English**, Welsh's Essentials of English, *five hours a week;* **Plane Trigonometry**, Chauvenet's Trigonometry, *five hours a week.*

THE JUNIOR YEAR.

FALL TERM.—**French**, Borel's Grammaire Française; *or* **German**, Brandt's German Grammar, easy prose reading, *five hours a week;* **Horticulture**, lectures and practical work, *four hours a week;* **Veterinary Anatomy**, lectures, *three hours a week;* **Zoology**, lectures and laboratory work, *three hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week.*

WINTER TERM.—**French**, Borel's Grammaire and Masson's French Classics; *or* German, Brandt's Grammar continued, and easy prose reading, *five hours a week;* **Veterinary Anatomy**, lectures, *five hours a week;* **Zoology**, lectures and laboratory work, *three hours a week;* **Horticulture**, lectures and practical work, *two hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week.*

SPRING TERM.—**French**, Masson's French Classics; *or* **German**, Brandt's Grammar, German fiction, *five hours a week;* **Horticulture**, lectures and practical work, *four hours a week;* **Zoology**, lectures and laboratory work, *three hours a week;* **Agricultural**

Chemistry, lectures and laboratory work, *three hours a week;* **English**, English A, Welsh's Complete Rhetoric, *two hours a week.*

THE SENIOR YEAR.

Fall Term.—Required: **Veterinary Science**, *five hours a week;* **Agriculture**, *two hours a week;* **Constitution of the United States**, lectures, *two hours a week.*

Elective: *Five hours a week;* chosen from the following studies: **Physics**, laboratory work, *five hours a week;* **Geology**, Le Conte's Elements of Geology, *five hours a week*; **Psychology**, Sully's Psychology, *three hours a week;* **German**, scientific reading, *three hours a week;* **French**, scientific reading, *three hours a week;* **Political Economy**, Laughlin's Edition of Mill's Political Economy, *two hours a week.*

Winter Term.—The studies of the Fall Term continued.

Spring Term.—The studies of the Winter Term continued, except that **Special Botany** is substituted for **Geology**, and **Ethics** for **Psychology**.

For the Preparation of a Thesis, *two hours a week throughout the year.*

FOR THE DEGREE OF DOCTOR OF VETERINARY MEDICINE.

FIRST YEAR.

Fall Term.—Histological Laboratory, *five hours a week;* Economic Botany, lectures and laboratory work, *four hours a week;* Physiology, lectures, Martin's Human Body and Practical Anatomy, *three hours a week;* Veterinary Anatomy, lectures, *three hours a week.*

Winter Term.—Histological Laboratory, *five hours a week*; Veterinary Anatomy, lectures, *five hours a week;* Physiology, lectures, Martin's Human Body and Practical Anatomy, *three hours a week;* Medical Botany, *two hours a week.*

Spring Term.—Histological Laboratory, *five hours a week;* Botanical Laboratory, *four hours a week;* Physiology, lectures, Martin's Human Body, and Practical Anatomy, *three hours a week;* Veterinary Anatomy, *three hours a week.*

SECOND YEAR.

Fall Term.—General Pathology and Therapeutics, *five hours a week;* Domestic Animals, Allen's Domestic Animals, *four hours a week;* Pharmacy, *three hours a week;* Agricultural Chemistry, lectures and laboratory work, *three hours a week.* Clinic.

Winter Term.—Stock Feeding, Stewart's Feeding of Animals, *four hours a week;* Materia Medica, Bruce's Materia Medica, *three hours a week;* Pharmacy, *three hours a week;* Agricultural Chemistry, lectures and laboratory work, *three hours a week.* Clinic and Dissections.

Spring Term.—Pharmacy, *five hours a week;* Special Pathology, *four hours a week;* Stock Breeding, Miles' Stock Breeding, *four hours a week;* Medical Zoology, lectures, *three hours a week.* Clinic and Dissections.

THIRD YEAR.

FALL TERM.—SPECIAL PATHOLOGY, *five hours a week;* SURGICAL DISEASES AND OPERATIONS, *five hours a week;* CLINICAL PRACTICE, *five hours a week.*

WINTER TERM.—MEDICAL JURISPRUDENCE, *five hours a week;* SURGICAL DISEASES AND OPERATIONS, *five hours a week;* CLINICAL PRACTICE, *five hours a week.*

SPRING TERM.—VETERINARY OBSTETRICS, *five hours a week;* HORSE SHOEING AND INSPECTION OF ANIMAL PRODUCTS, *five hours a week;* CLINICAL PRACTICE, *five hours a week;* BACTERIOLOGY, lectures, *one hour a week.*

FOR THE PREPARATION OF A THESIS, *two hours a week throughout the year.*

FOR THE DEGREE OF CIVIL ENGINEER.

THE FRESHMAN YEAR.

FALL TERM.—FRENCH, Borel's Grammaire Française, *five hours a week;* CHEMISTRY, lectures and Norton's Chemistry, *four hours a week;* MATHEMATICS, Wells' Trigonometry, *three hours a week;* ENGLISH, English A, Welsh's Complete Rhetoric, *two hours a week;* DRAWING, Warren's Projection Drawing, *three hours a week.*

WINTER TERM.—FRENCH, Borel's Grammaire continued, Masson's French Classics, *five hours a week;* MATHEMATICS, Olney's University Algebra, *three hours a week;* MINERALOGY, Dana's Mineralogy, *three hours a week;* CHEMISTRY, lectures and Norton's Chemistry, *two hours a week;* ENGLISH, English A, Welsh's Complete Rhetoric. *two hours a week;* DRAWING, Davies' Descriptive Geometry, *three hours a week.*

SPRING TERM.—FRENCH, Masson's French Classics, *five hours a week;* CHEMISTRY, lectures and Norton's Chemistry, *four hours a week;* MATHEMATICS, Wentworth's Analytic Geometry, *three hours a week;* ENGLISH, English A, Welsh's Complete Rhetoric, *two hours a week;* DRAWING, Davies' Shades, Shadows, and Perspective, *three hours a week.*

THE SOPHOMORE YEAR.

FALL TERM.—MATHEMATICS, Calculus and Analytic Geometry, *five hours a week;* SURVEYING, *four hours a week;* PHYSICS, Atkinson's Ganot's Physics, *three hours a week;* PHYSIOLOGY, lectures and Martin's Human Body, *three hours a week;* FRENCH, scientific prose, *two hours a week.* RHETORICALS.

WINTER TERM.—MATHEMATICS, Calculus and Analytic Geometry, *five hours a week;* PHYSIOLOGY, lectures and Martin's Human Body, *three hours a week;* Lettering and Platting, *two hours a week;* PHYSICS, Atkinson's Ganot's Physics, *three hours a week;* FRENCH, scientific prose, *two hours a week.* RHETORICALS.

SPRING TERM.—MATHEMATICS, Calculus and Analytic Geometry, *five hours a week;* SURVEYING, Searle's Field Engineering, *five hours a week;* PHYSIOLOGY, lectures and Martin's Human Body, *three hours a week;* PHYSICS, Atkinson's Ganot's Physics, *three hours a week;* FRENCH, modern French prose, *two hours a week.* RHETORICALS.

THE JUNIOR YEAR.

FALL TERM.—**GEOLOGY**, Le Conte's Elements of Geology, *five hours a week*; **MECHANICS**, Bowser's Analytical Mechanics, *five hours a week*; **ASTRONOMY**, lectures on Spherical Astronomy, *three hours a week*; **SURVEYING**, Topographical Surveying, *two hours a week*. **RHETORICALS.**

WINTER TERM.—**GEOLOGY**, Le Conte's Elements of Geology, *five hours a week*; Economic Geology, lectures, *five hours a week*; **DRAWING**, Warren's Stereotomy, *three hours a week*; **GEODESY**, lectures, *two hours a week*. **RHETORICALS.**

SPRING TERM.—**BRIDGE STRAINS**, Du Bois' Strains and Frame Structures, *five hours a week*; **STRENGTH OF MATERIALS**, Wood's Strength of Materials, *five hours a week*; **ASTRONOMY**, Practical Astronomy, with observations, *three hours a week*; **DRAWING**, Davies' Shades, Shadows and Perspective, *three hours a week*. **RHETORICALS.**

THE SENIOR YEAR.

FALL TERM.—**PHYSICS**, laboratory work, *five hours a week*; **CIVIL ENGINEERING**, *five hours a week*; **PLANS AND SPECIFICATIONS**, *three hours a week*; **POLITICAL ECONOMY**, Laughlin's Edition of Mill's Political Economy, *two hours a week*.

WINTER TERM.—Studies of the Fall Term continued.

SPRING TERM.—Studies of the Winter Term continued, except that Latham's **SANITARY ENGINEERING** is substituted for Mahan's **CIVIL ENGINEERING**. **PROJET WORK** throughout the year.

FOR THE DEGREE OF MECHANICAL ENGINEER.

THE FRESHMAN YEAR.

The studies are the same as in the Freshman Year of the course for the degree of Civil Engineer.

THE SOPHOMORE YEAR.

FALL TERM.—**MATHEMATICS**, Calculus, *five hours a week*; **PHYSICS**, Atkinson's Ganot's Physics, *three hours a week*; **DRAWING**, Warren's Projection Drawing, *three hours a week*; **MECHANICAL LABORATORY**, *three hours a week*; **FRENCH**, scientific prose, *two hours a week*; **RHETORICALS.**

WINTER TERM.—**MATHEMATICS**, Calculus, *five hours a week*; **DRAWING**, Davies' Descriptive Geometry, *three hours a week*; **PHYSICS**, Atkinson's Ganot's Physics, *three hours a week*; **MECHANICAL LABORATORY**, *three hours a week*; **FRENCH**, scientific prose, *two hours a week*. **RHETORICALS.**

SPRING TERM.—**MATHEMATICS**, Calculus, *five hours a week*; **PHYSICS**, Atkinson's Ganot's Physics, *three hours a week*; **DRAWING**, Davies' Shades, Shadows, and Perspective, *three hours a week*; **MECHANICAL LABORATORY**, *three hours a week*; **FRENCH**, modern French prose, *two hours a week*. **RHETORICALS.**

THE JUNIOR YEAR.

FALL TERM.—GEOLOGY, Le Conte's Elements of Geology, *five hours a week;* MECHANICS, Bowser's Analytical Mechanics, *five hours a week;* ASTRONOMY, lectures on Spherical Astronomy, *three hours a week;* MECHANISM, *two hours a week.* RHETORICALS.

WINTER TERM.—GEOLOGY, Le Conte's Elements of Geology, *five hours a week;* MECHANISM, *five hours a week;* TECHNICAL DRAWING, *five hours a week.* RHETORICALS.

SPRING TERM.—DESIGNING AND DRAWING, *five hours a week;* STRENGTH OF MATERIALS AND HYDRAULICS, Wood's Strength of Materials, *five hours a week;* ASTRONOMY, Practical Astronomy with observations, *three hours a week;* MECHANISM, *two hours a week.* RHETORICALS.

THE SENIOR YEAR.

FALL TERM.—PHYSICS, laboratory work, *five hours a week*; THERMODYNAMICS, lectures, *five hours a week;* METALLURGY, Phillips' Metallurgy, *five hours a week.*

WINTER TERM.—PHYSICS, laboratory work, *five hours a week*; METALLURGY, laboratory work, *five hours a week*; PRIME MOVERS, Rankine, with lectures, *five hours a week.*

SPRING TERM.—PHYSICS. laboratory work, *five hours a week;* TECHNICAL DRAWING, *five hours a week*; MILL-WORK, Rankine, with lectures, *five hours a week.* PROJET WORK throughout the year.

FOR THE DEGREE OF ENGINEER OF MINES.

THE FRESHMAN YEAR.

The studies are the same as in the Freshman Year of the course for the degree of Civil Engineer.

THE SOPHOMORE YEAR.

FALL TERM.—MATHEMATICS, Calculus, *five hours a week;* CHEMISTRY, laboratory work, *five hours a week*; PHYSICS, Atkinson's Ganot's Physics, *three hours a week;* DRAWING, Warren's Projection Drawing, *three hours a week.* RHETORICALS.

WINTER TERM.—MATHEMATICS, Calculus, *five hours a week;* CHEMISTRY, laboratory work, *five hours a week;* PHYSICS, Atkinson's Ganot's Physics, *three hours a week;* DRAWING, Davies' Descriptive Geometry, *three hours a week.* RHETORICALS.

SPRING TERM.—MATHEMATICS, Calculus, *five hours a week;* CHEMISTRY, laboratory work, *five hours a week;* PHYSICS, Atkinson's Ganot's Physics, *three hours a week;* DRAWING, Davies' Shades, Shadows, and Perspective, *three hours a week.* RHETORICALS.

THE JUNIOR YEAR.

FALL TERM.—GEOLOGY, Le Conte's Elements of Geology, *five hours a week;* CHEMISTRY, laboratary work, *five hours a week;* METALLURGY, Phillips' Metallurgy, *five hours a week.* RHETORICALS.

WINTER TERM.—The studies of the Fall term continued.

SPRING TERM.—The studies of the Winter term continued, except the MINERALOGY, laboratory determinations, is substituted for Geology.

THE SENIOR YEAR.

FALL TERM.—SURVEYING, *five hours a week;* MECHANICS, Bowser's Analytical Mechanics, *five hours a week;* ENGINEERING, Mahan's Civil Engineering, *five hours a week.*

WINTER TERM.—METALLURGY, laboratory work, *five hours a week;* ECONOMIC GEOLOGY, lectures, *five hours a week;* MINING ENGINEERING, *five hours a week.*

SPRING TERM.—ORE DRESSING, *five hours a week;* STRENGTH OF MATERIALS, Wood's Strength of Materials, *five hours a week;* PLANS AND SPECIFICATIONS, *five hours a week.* PROJET WORK throughout the year.

FOR THE DEGREE OF GRADUATE IN PHARMACY.

THE FIRST YEAR.

FALL TERM.—LATIN, Cæsar and Virgil, *five hours a week;* PHYSICAL GEOGRAPHY, Geikie's Physical Geography, *five hours a week;* CHEMISTRY, lectures and Norton's Chemistry, *four hours a week.*

WINTER TERM.—LATIN, Virgil, *five hours a week;* PHYSICS, Gage's Physics, *five hours a week;* MINERALOGY, Dana's Mineralogy, *three hours a week;* CHEMISTRY, lectures and Norton's Chemistry, *two hours a week.*

SPRING TERM.—PHYSICS, Gage's Physics, *five hours a week;* BOTANY, Wood's Class Book of Botany, *five hours a week;* CHEMISTRY, lectures and Norton's Chemistry, *four hours a week.*

THE SECOND YEAR.

FALL TERM —CHEMISTRY, qualitative analysis, etc., *five hours a week;* BOTANY, lectures and laboratory work, *five hours a week;* PHYSIOLOGY, lectures, Martin's Human Body, and Practical Anatomy, *three hours a week;* PHARMACY, lectures, *three hours a week.*

WINTER TERM —CHEMISTRY, qualitative analysis, etc,, *five hours a week;* PHARMACY, lectures and laboratory work, *five hours a week;* PHYSIOLOGY, lectures, Martin's Human Body, and Practical Anatomy, *three hours a week;* BOTANY, lectures on Medical Botany, *two hours a week.*

SPRING TERM.—CHEMISTRY, qualitative analysis, etc., *five hours a week;* PHARMACY, lectures and laboratory work, *five hours a week;* PHYSIOLOGY, lectures, Martin's Human Body, and Practical Anatomy, *three hours a week;* MICROSCOPY, theory and use of the Microscope.

THE THIRD YEAR.

FALL TERM.—CHEMISTRY, qualitative analysis, etc., *five hours a week;* PHARMACY, Remington's Practice of Pharmacy, and laboratory work, *five hours a week;* PRINCIPLES OF MEDICINE, Stone's Elements of Medicine, *five hours a week.*

WINTER TERM.—CHEMISTRY, quantitative analysis, *five hours a week;* MATERIA MEDICA, Bruce's Materia Medica, *three hours a week;* PHARMACY, lectures and laboratory work, *three hours a week;* PROXIMATE ORGANIC ANALYSIS, *three hours a week.*

SPRING TERM.—CHEMISTRY, quantitative analysis, *five hours a week;* PHARMACY, laboratory work, *five hours a week;* MATERIA MEDICA, *three hours a week;* TOXICOLOGY, *two hours a week.*

THE SHORT COURSE IN AGRICULTURE.

THE FIRST YEAR.

FALL TERM.—AGRICULTURAL CHEMISTRY, lectures and Norton's Chemistry, *five hours a week!* PHYSICAL GEOGRAPHY, Geikie's Physical Geography, *five hours a week;* GEOMETRY, Wentworth's Geometry, *five hours a week.*

WINTER TERM.—AGRICULTURAL CHEMISTRY, lectures and Norton's Chemistry, *five hours a week;* PPYSICS, Gage's Physics, *five hours a week;* MECHANICAL LABORATORY, *three hours a week;* FIELD MEASUREMENTS, *three hours a week.*

SPRING TERM.—AGRICULTURAL CHEMISTRY, lectures and laboratory work, *five hours a week;* PHYSICS, Gage's Physics, *five hours a week;* BOTANY, Wood's Class Book of Botany, *five hours a week.*

THE SECOND YEAR.

FALL TERM.—The studies are the same as in the Fall Term of the Freshman Year of the course for the degree of Bachelor of Agriculture.

WINTER TERM.—The studies are the same as in the Winter Term of the Freshman Year of the course for the degree of Bachelor of Agriculture.

SPRING Term.—The studies are the same as in the Spring Term of the Freshman Year of the course for the degree of Bachelor of Agriculture, except that AGRICULTURE, *four hours a week,* is substituted for ALGEBRA, *five hours a week.*

DEPARTMENTS OF INSTRUCTION.

AGRICULTURE.

PROFESSOR TOWNSHEND.

The University recognizes its obligations, imposed in the terms of the grant on which it is founded, to the great industrial interests of agriculture. This obligation it aims to meet in various ways. It fixes its standard of admission so that students may enter its courses from the better class of common schools. It provides for thorough instruction in the branches of science on which agriculture depends. It has established professorships of Theoretical and Applied Agriculture, of Horticulture and Botany, of Agricultural Chemistry, and of Veterinary Medicine. It has laid down a course leading to the degree of Bachelor of Agriculture, another leading to the degree of Doctor of Veterinary Medicine, and a short practical course of two years in agriculture. Its professors also devote much time and work every year to attending and lecturing at farmers' institutes throughout the State.

While it is believed that the varied and complex questions with which the farmer has to deal, justify and require, for their most successful treatment, the extended and thorough courses of study necessary for the degree of Bachelor of Agriculture, still all possible advantages are offered to young men from the country who enter the institution for a short time. The work of the Department of Agriculture is shaped so as to give to this class as large a measure of advantage as possible for whatever time they are in attendance.

There are three lines of work provided for the student in the Department of Agriculture. In the first, soils are made a subject of examination, their geological relations and origin are explained, their composition is shown, and how it is determined; the special adaptations of soils to particular crops and modes of culture are shown, and how to increase or restore exhausted fertility; the management of pastures and meadows; the character and value of the different grasses, clovers, and other forage plants; the culture of field crops, such as corn, wheat, oats, barley, rye, potatoes, etc.; also the value and application of animal manures, marl, gypsum, wood-ashes, lime, superphosphate, guano, and city sewage.

The work named above occupies the first and second terms. During the remainder of the year the following subjects are treated: work of the farm and improvements; drainage, draining tools, and the manufacture of drain-tiles; irrigation, its value and methods; farm roads and how to make them; fences, their material, construction, and cost; rural architecture, applied to the erection of farm houses, barns, stables, etc; farm machinery.

The second line of work is mainly devoted to the following topics: The natural history, description and adaptation of various domestic animals, horse-training, cattle-feeding, dairy management, wool-growing, etc.

The third kind of work relates to the general subject of veterinary medicine. The range of instruction can be learned from the topics; general principles, causes, symptoms, elements of disease; classification of diseases, principles of treatment, and remedial agents; particular diseases and operations. These are carefully studied, and, so far as opportunity can be obtained, diseases are treated and operations made under the inspection of the class.

AGRICULTURAL CHEMISTRY.

PROFESSOR WEBER.

Candidates for the degree of Bachelor of Agriculture take three terms of instruction in this department in the Sophomore and Junior years. Two hours of each week throughout the year are devoted to lectures and recitations on the applications of chemistry to agriculture; and on the remaining three days of the week two hours daily are spent in advanced analytical work pertaining to soil, water, fertilizers, manures, feeding stuffs, milk, butter, cheese, etc.

Students taking the Short Course in Agriculture receive three full terms of instruction in this department during the first year. The work of the first two terms embraces the principles of chemistry, chemistry of the non-metals and organic chemistry, as well as a complete course of qualitative analysis. In the spring term the applications of chemistry to agriculture are made a special study, both in the lecture-room and in the laboratory.

The rooms in the chemical laboratory assigned to the Department of Agricultural Chemistry have been fitted up in the most approved manner. The working laboratory for students contains twenty-four desks conveniently arranged and supplied with gas and water. Evaporating hoods for the evaporation of acids and the generation of noxious gases are placed on two sides of the laboratory, within easy reach of the student's desks. From this laboratory there is a direct entrance to the lecture-room at one end and to the balance-room and general store-room at the other. The laboratory is amply supplied with the necessary apparatus for the work to be done.

BOTANY AND HORTICULTURE.

PROFESSOR LAZENBY.

This department aims to teach students how plants grow, and to present the results of recent researches relative to their structure, classification and uses. Attention is also given to the best method of conducting original research.

The instruction in botany begins with the first year of the preparatory course, one term of which is devoted to structural and systematic botany. Further instruction is given in each of the following subjects: economic botany, vegetable physiology, vegetable histology, gramineæ compositeæ, and other special groups, ferns and fungi. Their arrangement, as regards the collegiate terms and years, is seen in the tabulated statement of the different courses of study.

The instruction is given by lectures in connection with laboratory practice, supplemented by field work and class excursions. The practical bearings of the science are made prominent in all the instruction given.

In economic botany, besides a study of special characteristics, geographical distribution, and distinctive properties of all the prominent natural orders, the history, uses and importance of the different economic species, included in their orders, are fully considered. In fungi, special study is made of those forms producing dust, mildew, blight, etc , which prove so destructive to cultivated plants.

The study of horticulture is pursued by lectures and recitations in the class room, supplemented by observation and practice in the gardens and orchards. It is treated as an art based on science. The instruction continues throughout the year. The first term is devoted to a study of the general principles of horticulture and fruit culture. Under the first general subject the following are among the topics considsidered: horticulture as a profession; its relation to science; location for horticultural work; implements; fertilizers; draining and irrigation; weeds and insects; management of help; marketing, etc.

The course in fruit culture embraces a study of the several varieties of both the small and large fruits, their origin and history, methods of propagation, pruning and training, harvesting and marketing; their insect enemies, diseases, etc. Class-room instruction is supplemented by practical lessons in budding, grafting, pruning, transplanting, cross-fertilizing, etc.

In arboriculture and forestry, special attention is given to the influence of forests upon climate, the value of trees for timber and ornament, the best methods of culture, and a history of different varieties.

The instruction in vegetable culture includes kitchen and market gardening and seed-growing. Among the subjects considered are: location of the garden; laying out ground; draining; special preparation of soil; irrigation; management of composts; commercial fertilizers; implements; selection of seed; construction and management of green-houses; hot-beds and cold frames; special garden crops, history, cultivation and varieties of each; growing seed for home use and for market; the family kitchen garden; etc. In connecton with the lectures, experiments, such as testing the vitality and germinating power of different seeds, are conducted in the laboratory.

The third term is devoted to practical floriculture and landscape gardening. The general subject is divided into the following topics: window gardening; general management of house plants, hanging-baskets, climbing vines, and flowering bulbs; ferneries; Wardian cases, etc.; out-door flower-gardening; commercial flower-gardening; lawns, walks and drives; ornamental shrubs and trees. A well-stocked green-house, flower-beds, and a considerable collection of ornamental shrubs and trees on the college grounds afford valuable means of illustration in the study of the above subjects.

The following is a brief summary of the means of illustration and instruction in this department:

(1.) A museum, containing specimens of nearly every plant found in the State, and fairly representing the flora of the United States. A large collection of grasses, grains, seeds of weeds, woods, and various economic products of the vegetable kingdom.

(2.) An orchard, containing numerous well-selected varieties of the apple, pear, cherry, plum and quince.

(3.) A small vineyard, containing 100 varieties of the grape.

(4.) A garden of small fruit, containing 100 varieties of strawberries, 40 of raspberries, 20 of blackberries, and all the standard sorts of currants and gooseberries.

(5.) A vegetable garden, with hot-beds, cold-frames, experimental plots, conveniences for irrigation, etc., in which are cultivated all the vegetables commonly grown in market gardens.

(6.) Nursery and forest-tree plantations, with practice rows for budding, grafting, pruning and training.

(7.) Ornamental grounds, or university campus, planted with a large variety of evergreens and deciduous trees and shrubs.

(8.) A well built and conveniently arranged green-house, furnished with a good collection of native and exotic plants selected with reference to their educational value.

The means of illustration in this department naturally divide into two distinct groups, viz.; (1.) Those suitable for the class-room. (2.) Those useful for outdoor observation, study and practice. To both divisions valuable additions have been made. For the class-room, the herbarium has been enlarged, and a valuable collection of woods, fibres, fruits, grains, and other material representing various economic products of the vegetable kingdom, has been secured. Much of this material formed a part of the "Ohio exhibit" at the recent World's Industrial and Cotton Centennial Exposition at New Orleans, and was received by exchange.

In the green house many new plants of great educational value have been added to the collection during the past season. It is now fairly well stocked, and adds greatly to the efficiency of the work of the department. The means of out-door illustration have been greatly extended, and, in most particulars, are comprehensive and valuable.

CHEMISTRY.

PROFESSOR NORTON.

In the Freshman year of the scientific and technical courses general chemistry is taught four hours a week during the Fall and Spring terms, and two hours a week during the Winter term. The same work is required in the courses in Arts and Philosophy during the Fall and Winter terms, that of the Spring term being elective. The subject, with its most important applications to the arts, is taught by text-book and lectures, illustrated by an ever-growing collection of the materials used in the manufactures, and by a very complete suite of experiments.

After the completion of this elementary course, those who desire to devote special attention to chemistry enter the analytical laboratory, where they can carry on their work for two years or more. Throughout this course the endeavor of the instructor is to make the student self-reliant. In the first year the theory of chemical philosophy is developed, as is customary in the older universities of Germany. In the following years the student is taught the technics of the art, and a systematic effort is made to ground him in the details necessary.

The course in analytical chemistry provides full instruction in all departments of the science. In connection with the ordinary work of qualitative chemistry, the student is taught the use of the spectroscope, and of the blow-pipe in determinative mineralogy. He is also employed in making various compounds, and, if his time permit, studies exhaustively one or more of the elements and its important compounds.

The course in quantitative chemistry includes all the methods in actual use The analyses are at first confined to those compounds whose structure is known, and afterwards extended to such bodies as the student may require in the special branch of the science to which he desires to devote himself. Opportunity is offered for the study of coals, ores, minerals, fertilizers, soils, or of the useful and the waste products of manufactures. If the student desires he will be assisted in taking up in detail topics which relate to arts in which the principles of chemistry are applied.

A summary of the course is given below:

GENERAL CHEMISTRY.—Inorganic chemistry and the application of chemistry to the arts, two terms.

Organic chemistry, required only in the Science and the technical courses, one term.

ANALYTICAL CHEMISTRY—*First Year.*—First Term. Qualitative Analysis: Exercises in Blow-pipe and Flame Reactions; Reactions in the dry way; Reactions of Single Bases and Acids.

Second Term. Qualitative Analysis: Determination of Mixtures; Blow-pipe Mineralogy; Preparation of Compounds.

Third Term. Qualitative Analysis; review of general chemistry throughout the year.

Second Year.—Qualitative Analysis completed; Stoichiometry.

Quantitative Analysis: Special studies in chemistry applied to pharmacy, to manufactures, and to arts.

CIVIL ENGINEERING.

ASSOCIATE PROFESSOR BROWN.

This course is intended so to instruct the student in the principles and theories of engineering that he may enter understandingly on the practice of his profession. Theory and practice are combined as far as possible. The practice follows closely the actual field and office work of engineering parties; and the endeavor is made to qualify the student for any position on such parties.

The instruction is given by means of lectures, recitations, drafting, field-work, and visits to engineering structures in the vicinity. The department has a full outfit of surveyor's and engineer's instruments, such as compass, transits, level, plane-table, solar compass, chains, steel tapes, rods, etc. The student is trained in the use of these instruments until he becomes familiar with every part and with the work that can be done with each. The department has a number of models, photographs, drawings, and blue prints for use in giving instruction in bridge works, stereotomy, and the construction of various works. This collection is being constantly increased. The department has a good "dark room" and all students are practiced in making blue prints.

DRAWING.

MR. BRADFORD.

Free-hand drawing is an elective study in the courses in Arts and Philosophy, and is required in the course in Science. The end sought in free-hand drawing is the improvement of the eye in its faculty of observation. The work consists in:

First. Cultivating the eye to see outlines correctly, and the hand to draw accurately what the eye sees. Exercises from outline flat copies are first taken up, and a facility of the hand is acquired.

Second. Cultivating the eye to perceive delicate varying shade, and the hand to produce it. Also the eye to distinguish the appearances of objects and the hand to draw them.

The work of shading is done, first from flat copy, with pencil, crayon, or charcoal; and then from actual objects, as wooden models and plaster casts.

The work is continued by making crayon drawings from photographs, landscapes from copy and nature, water-color painting or oil painting from still life and copy.

Instruction in mechanical drawing is given to students in the Sophomore year of the engineering courses as follows:

The first term's work consists of projection drawing (orthographic, isometric and oblique), in which the student is taught the care and manipulation of drawing instruments, and is trained to exercise his imagination in order to form a clear conception of the appearance of objects.

This ability to form a vivid and distinct mental image, as well as to fix it permanently by accurate representations, is a faculty very much needed by the engineer, who is frequently called upon, not to copy what has been done, but to do what has not been done.

The instruction is given by means of the text-book and lectures, the problems being neatly executed on bristol board.

The second term's work consists of descriptive geometry, instruction in which consists of class-room work from text-book, diagrams, etc., and the execution of problems on bristol board.

In the third term shades, shadows and linear perspective are studied. The instruction is given by means of text-book and lectures, and the problems are neatly executed in color, in order to familiarize the student with the use and manipulation of the conventional colors used in engineering drawings.

Advanced work is provided to suit the particular needs of the several engineering departments.

ENGLISH LANGUAGE AND LITERATURE.

ASSOCIATE PROFESSOR WELSH.

The work in English extends through three years. The aim is to give the student a correct understanding and use of the language, and to familiarize him with the history, nature and characteristics of the literature.

1. English A is a required study for all students in the Freshman year of the four-year courses. It includes a study by text-book of the principles of rhetoric and their application by the student to formal exercises in oral and written discourse.

2. English B is required of students in the Sophomore year of the courses in Arts and Philosophy, and is open to students in the Sophomore or Junior year in the course of Science. It comprises the study for one term of Anglo-Saxon, and, for two terms, of the history and development of the English literature as a whole. The work is done by text-books, synoptical charts and occasional lectures and essays.

3. English C is open to students in the Senior year of the courses in Arts, Philosophy and Science. This course gives an opportunity, under the guidance of the professor in charge, for the direct study and critical estimate of about twenty-five of the masterpieces of our literature. Among the authors whose writings are studied and discussed by the class, are More, Bacon, Spenser, Shakespeare, Milton, Dryden, Pope, Burke, Coleridge, Carlyle, George Eliot, Irving, Hawthorne, Emerson and Longfellow. In detail, the work consists in the private reading of the masterpieces in the order announced at the beginning of each term, followed in the weekly meetings by an essay, critique and oral discussion on each author and work.

FRENCH LANGUAGE AND LITERATURE.

ASSOCIATE PROFESSOR WILLIAMS.

Instruction in this language extends over a period of two years. In the beginning, the student attends mainly to grammatical doctrine and literal versions, and afterwards to the literary contents and characteristics of what he reads. Lectures upon French literature run through the second year of the course.

The first year's work is the same for all students, but in the second year separate courses are provided, one for students in Arts and Philosophy, and one for students in Science, the details of which may be found in the published Courses of Study.

GEOLOGY AND PALEONTOLOGY.

PROFESSOR ORTON.

The University is able to present unusual advantages for the study of geology. By act of the Legislature it has been put in possession of all the collections made by the late Geological Survey, and these collections have been supplemented by valuable additions of fossils and minerals from various sources. The state collection embraces a very complete representation of every geological formation shown in Ohio.

General geology is elective in the first two terms of the Senior year of the courses in Agriculture, Arts, and Philosophy. It is required in the first two terms of the Senior year of the course in Science, and in the first two terms of the Junior year of the course in Engineering. Economic geology is required in the second term of the Senior year of the course in Mining Engineering, and in the second term of the Junior year of the course in Civil Engineering.

Students desiring to pursue geology further can elect it as one of their studies throughout the Senior year. In this year, particular attention will be given to the geology and paleontology of Ohio, for the illustration of which subjects the museum affords ample materials. These subjects will be taught by lectures, by practical work in the museum, and as far as possible by field practice.

GERMAN LANGUAGE AND LITERATURE.

ASSOCIATE PROFESSOR EGGERS.

The course in German has been considerably extended during the last year. The two years in German in the Preparatory course remain, but German is introduced as an elective into the Junior and Senior years of the courses for the degrees of Bachelor of Arts and Bachelor of Philosophy. The work for the first year of these courses will be the same as that of any beginning class, but a special course has been laid out for a second year, affording extended reading in German classic literature and in scientific German. To enter upon this special course the student must be able to read German readily. An elective of two hours a week in scientific reading is offered to those students intending to take the degree of Bachelor of Science, who have obtained credit for the German of the preparatory course.

Students who enter the course in Science without German will take this language in the Freshman and Sophomore years.

GREEK LANGUAGE AND LITERATURE.

PROFESSOR SMITH.

The study of Greek extends through the four collegiate years of the course for the degree of Bachelor of Arts. Owing to the exigencies of the program, the language is begun in the Freshman year; by which arrangement a previous training of three years in Latin is secured, and a rapid progress in Greek is made possible.

As will be gathered from the course of study, the training for the first two years is intended to acquaint the student with the grammatical principles of the language, and to furnish him with as extended a vocabulary as possible. To this end frequent reviews and exercises in prose composition are used.

In the Junior and Senior years the student's attention is more closely directed to the significance of the Hellenic civilization, and the range and scope of its literature and art. Besides the reading of authors, with comments, the students are required to present results, in essay form, of private and extended reading. These essays are read and discussed before the class. Lectures are also given on topics connected with the work of the term.

The work of the course is all required, occupying five hours a week through the Freshman year, and three hours a week through the three upper years. An elective of two hours a week is offered in the Senior year, consisting of lectures on the history of ancient art.

HISTORY AND POLITICAL SCIENCE.

Professor Knight.

History.—In the collegiate department the courses offered in history are open to students in the Junior and Senior years of the courses in Arts, Philosophy and Science. The work may be briefly described, as follows:

1. History A is a comprehensive study of Continental European history to the period of the French Revolution, with special attention to the rise and fall of political, social, religious, and governmental ideas and institutions. The work is done by text-book, with occasional lectures and frequent references to standard works. This course is given each alternate year, and may be expected in the year 1887-88.

2. History B comprises two subjects, each pursued for a half-year. The first is a study of the French Revolution, its causes, and its effects on France and Europe, and the development of constitutional government on the Continent during the present century. The second half-year is devoted to the political and constitutional history of England. In these courses the work is done partly by text-books and partly by lectures, accompanied by extended reading on the part of the students. This course alternates with History A and will not be given in the year 1887-88.

3. History C is a historical and economic seminary course open to advanced students for the exhaustive study of special topics in the political and industrial history of the United States. The students are sent to original sources of information, and are expected to find and work out their own results under the guidance of the professor. This course must be preceded or accompanied by that in the constitution of the United States.

Political Science.—1. The Constitution of the United States. This course, extending through one year, is required of Juniors in the courses in Arts and Philosophy and of Seniors in the course in Agriculture, and is open to students in the Sophomore or Senior year of the course in Science. It embraces a series of lectures, for two terms, on the constitutional history of the United States, and the study, for one term, by text-book of the elementary principles of constitutional law.

2. Political Economy. This is a required study in the Senior year of the courses in Arts, Philosophy, and Civil Engineering, and in the Junior year of the course in Science. It is also open as an elective study in the Senior year of the course in Agriculture. During the first two terms the aim is to familiarize the student with the principles of the science, while the third term is devoted mainly to the consideration of some of the practical problems presented to industrial society as it exists to-day.

LATIN LANGUAGE AND LITERATURE.

Professor Derby.

Latin is a required study for all regular students in the school of Arts and Philosophy. The course of instruction extends through the first three years of the college curriculum. The exercises in this department occur five times a week in the Freshman year, three times a week in the Sophomore year, aud twice a week in the Junior year.

The subjects are taught by means of text-books and lectures, and illustrated by books of reference, maps and plans. Topics for investigation and an oral or written report of results are assigned te members of the advanced classes. By such exercises an attempt is made to acquaint the student with some of the sources of our knowledge of classical antiquity, to train him in the methods of research, and to give interest to the study of philosophical questions.

The main purpose of the earlier portion of the course is to give the student a ready command of the forms of the language, with such familiarity with its vocabulary and construction as will enable him in the latter period of his study to pay attention chiefly to the literature, life, and polity of the Roman people.

MATHEMATICS AND ASTRONOMY.

Professor Bohannan.

The collegiate work in mathematics begins in the first term of the Freshman year, with analytical and spherical trigonometry, followed by higher algebra in the second, and elementary analytic geometry in the third term. This work is required of students in the course in Science and in the technical courses, and in the second and third terms' work is open as an elective to students in Arts and Philosophy.

The work in mathematics in the Sophomore year, required of Engineering students and elective for Science students, is the study of the differential and integral calculus, with some further work in analytic geometry. The class recites three times a week in calculus (Taylor's) and twice a week in analytic geometry (Charles Smith's) throughout the year. During this year, and also in the Freshman year, where practicable, attention is paid to the applications which these several branches of mathematics find in problems of physical science and engineering.

In the Fall term of the Junior year students in Civil and Mechanical Engineering take up the study of spherical astronomy, including the theory of the principal astronomical instruments and the elements of the method of least squares, using in the latter subject Merriman's Text-Book of Least Squares. The instruction in astronomy is mainly by lectures. The work of this term is supplemented in the Spring term by a course of practical instruction in the use of the sextant and theodolite for the determination of time, latitude, longitude, and azimuth, each student being here required to make and discuss his own observations with the application of the method of least squares wherever practicable. This study is open as an elective to Science students who have obtained credit for the mathematics of the Sophomore year. In the Winter term of the Junior year instruction in geodesy is given to students of Civil Engineering, special prominence being assigned to the work and methods of the U. S. Coast and Geodetic Survey.

The study of descriptive astronomy is taken up in the Spring term of the Senior year by candidates for the degree of Bachelor of Science, and by such candidates for the degree of Bachelor of Arts or Bachelor of Philosophy as have elected geology in the first two terms of this year. The work of the term is based upon the study of a text-book, supplemented by occasional lectures upon the history of astronomy, and upon its still unsettled problems. An equatorially mounted telescope by Alvan Clark & Sons, of sufficient size to show plainly the more striking features of the planets and nebulæ, adds to the interest and profit of this study.

Arrangements have also been made for an elective course in higher mathematics, extending throughout the Junior year of the course in science. The class is studying this session The Newtonian Potential Function (Peirce), and Mathematical Electricity (Mascart and Joubert). Next session a course in Differential Equations will be offered.

MECHANICAL ENGINEERING.

PROFESSOR ROBINSON.

This course is intended for those who desire to prepare themselves for the profession of mechanical engineering, for superintending the construction of machinery, or for managing machinery in manufacturing establishments. In it instruction in principles is combined with practice in class room and laboratory.

The course includes the following technical studies: principles of mechanism, machine designing and drawing, thermodynamics and transmission of fluids, prime movers, machinery and mill-work.

Besides the above there will be required for graduation: one term of analytical mechanics, three terms of elementary laboratory practice, one term of advanced laboratory practice, one term of machine construction, one term of strength of materials and hydraulics.

In the principles of mechanism the parts of machinery are studied by pairs or elementary combinations. In this the form and arrangement of the parts necessary for securing the desired modification of motion are sought.

In machine designing the student takes up some problem in the shape of a particular machine for a special purpose. The forms, dimensions, and arrangements of the parts are decided upon, and then a drawing is carefully made of the whole. Detail drawings to regulation size are then made, and finished in shade lines, as is done in the best shops. The quality of these drawings is sufficient for the requirements of photo-engravings for illustrations upon circulars.

In thermodynamics the principles which form the ground work of all heat engines are studied.

In prime movers are studied all kinds of heat engines, such as steam engines, hot-air engines, etc., and also wind-wheels and water-wheels.

The study of machinery and mill-work takes up valve-gears, fly-wheels, governors, efficiency of parts of machines, strength of parts, etc.

The mechanical laboratory is intended to acquaint the student with the materials used in machine construction, and with the forms customary in machinery; to impart a degree of skill in the use of tools, and a knowledge of the operations and practices of shops. The student uses most of the ordinary tools of the machine-shop, such as the vise, hand-lathe, drilling-machine, engine-lathe, milling and shaping-machine and planer; also, the forge and anvil, the iron cupola and brass furnace and pattern-makers' tools. The work consists of the actual use of tools in executing a set of elementary forms chosen with a view to supplying the greatest possible amount of practical instruction for the time. This is carried to the fitting together of parts, as in the joints of machinery, and in finishing the surfaces by scraping, polishing, burnishing, etc. One term is given to the invention, designing, and drawing of simple machines for specific operations, such as bending wire staples, cutting wooden combs, etc. Part of a term of mechanical laboratory practice is constructive. It is taken in connection with the principles of mechanism. In the latter, problems in mechanism are worked out, forms and dimensions assigned to the parts, and then these are executed in the laboratory, resulting in models of mechanical movements for the cabinet.

Projets will be assigned to the student, from time to time, on topics connected with his studies, requiring him to take indicator cards, test the efficiency of boilers, visit manufacturing establishments, etc., and report. Such reports are neatly made out on the regulation paper of the department.

MILITARY SCIENCE AND TACTICS.

Lieutenant Kilbourne, U. S. A.

This department is under the charge of an officer of the regular army, who is specially detailed for the purpose.

Instruction in military science is given by means of a systematic drill, supplemented by lectures and recitations. The drill serves the additional purpose of regularly supplying a wholesome exercise and imparting to students an erect and soldierly bearing. For purposes of drill all students enrolled in the department are organized in a battalion, the officers of which are selected from those students who have shown special proficiency in the work of the department. The roster of officers will be found at the end of the catalogue of students.

Five hours a week throughout the year are allotted to the drill; but in unfavorable weather recitations upon the tactics of the several branches of the service, upon military law and the history of military science, are substituted for drill.

In addition to infantry arms and accoutrements sufficient to equip the battalion, the University possesses two 8 inch rifles, loaned by the War Department, by means of which artillery drill is given. A military band has also been organized in connection with this department and is supplied with instruments belonging to the University.

MINING AND METALLURGY.

Professor Lord.

The course in Mining Engineering secures to the student careful instruction, with ample allowance of time, in three fundamental branches of the art—mining, preparation of the ore, and metallurgical treatment. These courses comprise lectures, the study of text-books, preparation of maps, drawings, and sections, and visits to existing works, with careful reports upon them and practice in estimates and designs.

For assaying there is a full equipment of furnaces and ores for the dry assay, and the wet methods are taught in the chemical laboratory.

An ample collection of minerals is provided, comprising all species with which the mining engineer should be familiar, and to this the students have constant and familiar access.

Crystallography is taught by the aid of a complete collection of large wooden models, made specially for the department and containing every common form.

PHARMACY.

Associate Professor Kauffman.

By a recent statute of Ohio it is made compulsory upon all persons desiring to engage, either as proprietors or assistants, in the retail drug business, to appear before the State Board of Pharmacy and pass an examination to test their competency in compounding and dispensing medicines. The violation of this law is made a misdemeanor and is punishable by a heavy fine.

The University, recognizing its obligation to respond as far as possible to every demand for advanced knowledge and training, has opened a school of pharmacy, which is in successful operation. The course of study extends through three years. The studies prescribed include those indicated by the requirements of the State Board of Pharmacy, and other branches which bear most directly on the work of the pharmacist.

The first year is devoted to the study of chemistry, botany, physics, and Latin. The work in general chemistry continues through the course.

The work in pharmacy proper is begun in the second year. During the Fall term the subjects treated are: the Pharmacopœias; laws relating to pharmacy and pharmaceutical processes. The time is occupied in part by lectures and in part by recitations. With the Winter term the work in the pharmaceutical laboratory begins and continues throughout the course. Each student is provided with a desk, apparatus, and material sufficient to conduct each operation independently, and the work is so arranged as to illustrate the subjects treated in the lectures and recitations, which continue throughout the course. The Winter and Spring terms are devoted to the study of officinal pharmacy, and in the laboratory each student is required to prepare medicated waters, syrups, honeys, mucilages, glycerites, spirits, elixirs, collodions, liniments, oleates, infusions, decoctions, tinctures, medicated wines, fluid extracts, oleoresins, vinegars, extracts, abstracts and resins.

In the Fall term of the third year the study of pharmaceutical chemistry is taken up, and in the lecture room and laboratory the students receive instruction both in the methods of manufacturers and in methods adapted to the requirements of the dispensing pharmacist. The Winter term is occupied by the study of the "products of organic substances." Under this head are included the ethers, oils fixed and volatile, gum resins and balsams, resinoids, glucosides, alkaloids, etc. Near the close of the term some time is given to pharmaceutical testing. The Spring term is devoted to extemporaneous pharmacy and dispensing. The students are drilled in prescription work, the preparation of pills, powders, emulsions, ointments, plasters, and in fact all the operations which the pharmacist in active practice is called on to perform. Drill in pharmacognocy continues throughout the course.

A well drilled cabinet of officinal and unofficinal drugs, chemicals and galenical preparations is at hand.

The degree of Graduate in Pharmacy, Ph. G., will be conferred on those who complete the required course of study.

PHILOSOPHY.

PRESIDENT SCOTT.

The work in philosophy extends through the Junior and Senior years of the courses in Arts, Philosophy, and Science, and through the Senior year of the longer course in Agriculture. The Senior work in the courses in Science and Agriculture, and two hours a week in the Senior year of the courses in Arts and Philosophy, are optional. The rest is required.

During the two terms of psychological study the best authorities are consulted, and essays are written by the class. It is the constant aim to lead the student, as fast as possible, to dealing at first hand with the profound and interesting problems of mind. For this end the conversational method has been found most effective, and is much relied on in teaching this as well as the other subjects of the department; but text-book and lectures are also employed.

The term in ethics is devoted to the study of the prevailing theories of morals, and an effort is made to form a critical estimate of their truth and value. The nature of conscience, the ideas of right and obligation, their sources and their authority, and the relation of ethics, on the one hand, to the intellectual, and on the other, to the practical life, are successively taken up and considered.

The first and second terms of the second year are given to logic. It is studied in both its deductive and inductive form, and copious examples are introduced. The diligent student may, even in the brief time allotted to the study, obtain a fair elementary knowledge of the subject, and thus open the way for an intelligent direction of his powers in all his intellectual pursuits.

The work in this field is completed by a term in the history of philosophy. By means of lectures and with Schwegler as a text-book, the first names in the history of thought are studied, their relations developed, and the progress of opinion traced through its successive stages.

The elective work in the Senior year of the courses in Arts and Philosophy is devoted to recent philosophy.

PHYSICS.

PROFESSOR THOMAS.

Th study of physics is taken up in the Sophomore year, instruction being given by lectures and by text-book. The work covers the quantitative discussion of elementary mechanics, heat, electricity, sound, and light, as fully as the time allotted will allow. Quantitative experiments, made possible by our excellent apparatus, are freely used.

A course in laboratory work is required of Seniors in the courses in Mechanical and Civil Engineering, and is open as an option to other students who have taken the Sophomore work. This course opens with exercises in length, mass and time measurement, and is followed by such practice in elementary measurement, as is necessary to give the student facility in the use of instruments and knowledge of the theory of their construction and adjustment. The determination of various physical constants follows, after which the student takes up such advanced work as his taste and skill permit, either repeating some published investigation or undertaking the solution of some of the simpler problems suggested by current periodicals. The experimental work is accompanied by instruction in methods, and in the discussion of results.

Nine hours per week (three afternoons) through the year are allotted to this work. Students in the courses in Arts and Philosophy may elect two years in the laboratory, and students in the course in Science may elect three or four years. Special facilities are afforded postgraduate stndents.

The department has an excellent equipment of apparatus, to which additions are constantly being made. The apparatus includes pieces for the illustration of the general lecture room work, but is principally chosen for accurate measurement in the laboratory. The State standards of length, capacity and mass, both English and metric, are deposited here, and also the set of English standards, sent us under the act of Congress supplying such sets to the several agricultural colleges. All three of the sets are copies of the United States standards, made by the Coast Survey at Washington.

Among our principal pieces of apparatus are a dividing engine by Fauth & Co.; chronometers by Parkinson and Frodsham, and by Negus, the latter a break circuit;

a chronograph by Fauth & Co.; a Hipp's chronoscope; cathetometers by Salleron and by the Geneva Society, the latter an exceptionally fine instrument; Regnault's apparatus for vapor tension and for expansion of gases; Melloni-Tyndall apparatus for radiant heat; standard thermometers by Baudin and others; Rutherford and Rowland diffraction gratings; Rowland's spectrum photographs; spectroscope by Browning, Apps and others; Salleron's complete apparatus for projections in polarized light; lanterns for projections by the lime light and the arc light; a variety of sound apparatus from Koenig; a portable and two quadrant electrometers; Thomson galvanometers of high and low resistance; Thomson current and potential galvanometers; Weidemann, Kohlrausch and other galvanometers; standard resistance coils with Cavandish laboratory certificate; several sets of resistance coils and bridges; a Kew magnetometer; a gas engine; an Edison dynamo machine; a Thomson-Houston arc light dynamo, loaned by the company; and the state photometric apparatus.

VETERINARY MEDICINE.

PROFESSOR DETMERS.

The various branches of veterinary study are divided among six professors, and several well-equipped laboratories are open to the students of the department. For practical instruction, a free clinic is held daily, and the medicines prescribed are prepared by the students in the dispensary. Experiments and original investigations in regard to animal diseases, their causes, prevention, and treatment, are conducted by the professor in charge, under the auspices of the Ohio Agricultural Experiment Station, connected with the University. Veterinary students are thus afforded an opportunity to become practically acquainted with the latest methods of investigating infectious and contagious diseases, and with the disease producing germs of the animal organism. A convenient dissecting room, a collection of surgical instruments for veterinary practice, skeletons of the horse and the cow, and Auzoux models of the horse and of important parts of the horse, constitute a portion of the equipment of the department. A large room has been fitted up as a veterinary museum, which will be supplied with additional specimens as rapidly as circumstances permit.

A course of study extending through three years has been prescribed. This is preceded by a year of preparatory study provided for students who are not ready to enter at once upon the more advanced course. During the three years of the latter all branches of veterinary science are so taught that a student who graduates at the completion of the course will be a well-informed and competent veterinarian, and be at home, not only in the common branches of veterinary science, such as veterinary anatomy, physiology, surgery, pathology, therapeutics, obstetrics, principles of horseshoeing, etc., but also in such important auxiliary branches as chemistry, botany, histology, microscopy, pharmacy, the laws of hygiene, the laws of breeding, forensic veterinary medicine, veterinary sanitary police, etc.

ZOOLOGY AND COMPARATIVE ANATOMY.

PROFESSOR TUTTLE.

These sciences are elective in the courses in Arts, Philosophy, and Science. The associated science of physiology, instruction in which is given in this department, is a required study in the courses in Agriculture, Engineering, and Science; it is elective for students in Arts and Philosophy.

In the first term of the second year of the Short Course in Agriculture, three hours a week are given to anatomy, chiefly of the domestic animals; instruction is here given by lectures, accompanied by daily demonstrations and dissections. This work is chiefly preparatory to the lectures in veterinary science given by the Professor of Agriculture.

In the second term, five hours a week are given to physiology and hygiene, taught by lectures and recitations, with demonstrations.

Zoology, general and practical, is required of students in Agriculture three hours a week during the Junior year.

Throughout the Sophomore year of the course in Science, three hours a week are assigned to anatomy and physiology; of these, two hours are occupied by lectures and recitations, while the third hour is devoted to illustrative demonstrations, anatomical and physiological. This work is elective for students in the courses in Arts and Philosophy. Attendance on the lectures and recitations is required of all students in Engineering; but the practical work is optional for them. The entire work is required in the course in Veterinary Medicine.

A limited supply of apparatus for physiological, and material for anatomical demonstrations, and an ample cabinet of histological preparations, are provided.

Comparative anatomy is elective in the Sophomore year of the courses in Arts, Philosophy, and Science. The equivalent of three hours per week throughout the year is given to practical work in the dissection of the vertebrates—chiefly the mammals. Material and all necessary appliances are amply provided, and such lectures are given from time to time as are necessary for the elucidation of the problems that arise.

Students in Arts, Philosophy, and Science, who have completed the Sophomore work in anatomy and physiology, have open to their election in the later years of their course two distinct lines of work in this department, in both of which the instruction is in part by lectures, but chiefly by laboratory work.

The first of these is histology, viewed chiefly in its relations to physiological anatomy, and also as preparatory to the study of pathology. The department is well equipped for this work. In addition to an ample cabinet of preparations, both normal and pathological, the laboratory is provided with all necessary reagents for the preparation and preservation of the various tissues and organs of animals, with injection and imbedding apparatus, and with freezing and other microtomes of the most recent and improved patterns. Each student is supplied with an excellent microscope, with powers from sixty to six hundred diameters, and with the necessary materials and appliances for the staining and mounting of preparations; and is required to familiarize himself with these processes, as well as to acquire a thorough knowledge of the characteristics of tissues and the structure of organs, by their direct and continued study.

The second line of work open as an elective to the students above mentioned, is zoology. It deals with the phenomena of animal life from the morphological, rather than the physiological aspect. In addition to an introductory study of representative animal forms, and as extended study as circumstances will permit of some particular class of animals, special training will be given in microscopical manipulations and in the more elaborate processes of histological technique, all students being expected to devote a large portion of their time to work in comparative histology and embryology. Lectures will be given each year upon one of the great divisions of the animal kingdom, in which the organization, development, and classification of its members will be discussed; upon the comparative anatomy, histology, and ontogeny of the apparatus of one or more of the principal functions of animal life; or upon some of the leading questions of general morphology, or philosophic zoology. In order that the instruction in this science should be made of the highest value, however, it is important that the equipment of the department should be increased.

GENERAL INFORMATION.

FOUNDATION.

The University was founded in accordance with an act of Congress, passed July 2, 1862. Under this act the State of Ohio received from the United States six hundred and thirty thousand acres of the public land for the purpose of establishing a college "where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The fund arising from the sale of this land now aggregates, within a little, the sum of five hundred and thirty-eight thousand dollars, which is held in trust by the State and yields an annual income of thirty-two thousand two hundred and seventy dollars.

The University also received three hundred thousand dollars from Franklin county, and twenty-eight thousand dollars from citizens of Columbus, which were expended in the purchase of a farm within the limits of the city of Columbus, in the erection of buildings, and in the equipment of the departments of instruction. The total value of endowment and property at the present time exceeds one million one hundred thousand dollars.

For several years the Legislature has made annual appropriations to supply new and growing needs. The total income of the University last year was over sixty-two thousand dollars. The incomes of the Agricultural Experiment Station and the Meteorological Bureau, which were also expended at the University, raised the aggregate to about seventy thousand dollars.

The Trustees and Faculty have endeavored to direct the policy of the University in accordance with the excellent provisions of the act of Congress on which the endowment is based. While the subjects commonly included in college studies are taught with efficiency and thoroughness, special provision has been made for extensive and practical instruction in the various branches of natural science and their applications. The leading industries of the State have separate departments and special courses of study provided, while the sciences that underlie them form special departments and are taught by extended courses in well equipped laboratories.

LOCATION.

The University is situated within the corporate limits of the city of Columbus, two miles north of the Union depot. Two lines of street railroad reach the grounds. Persons wishing to visit the institution should take a white car going northward; or if they wish to reach the dormitories, they should take a green car.

GROUNDS AND BUILDINGS.

The University possesses about three hundred and twenty-five acres of land, the most of which is devoted to agricultural purposes. Forty acres have been reserved for a campus, which is being improved year by year. There are ample grounds for military drill, athletic sports, lawn tennis courts, and a base ball ground.

There are four buildings devoted to the immediate work of the University. The largest of these contains the President's room, the Chapel, the Library, the Geological Museum, the Art Hall, lecture rooms, two laboratories, the society halls, and the office of the State Meteorological Bureau. Another contains the department of Mechanical Engineering; another the departments of General Chemistry, Agricultural Chemistry, Pharmacy, and Mining Engineering; and the fourth the department of Botany and Horticulture, with a green-house and the offices of the State Agricultural Experiment Station. There are two dormitories accommodating more than eighty students, and seven residences for professors. Besides these there are numerous buildings occupied by the Farm department, the Agricultural Experiment Station, and the department of Veterinary Medicine.

THE LIBRARY.

The University Library is well supplied with books of reference and standard works in science, history, philosophy, and general literature. The privilege of drawing books is granted to students under reasonable restrictions. The reading room is furnished with leading periodicals, care being taken to select such as will afford to the student the freshest and ablest discussions on subjects of current interest, and the latest thought in the several departments of instruction.

Recent legislative appropriations have greatly extended the usefulness of this important adjunct of university work. Additions are constantly made to the list of books in all departments; and the whole is contained in a large and well lighted room especially fitted up to receive it. The number of volumes is at present about eight thousand.

The State Library, containing about sixty thousand volumes, is accessible to students, and constitutes a valuable auxiliary to the University. The Public Library of Columbus, with its eighteen thousand volumes, may also be used.

LABORATORIES.

Much of the work in science is performed in laboratories by the students themselves. To promote this, which is now universally recognized as the true method of teaching science, the Trustees and Faculty have been at great expense and pains to provide the best possible facilities. The number of laboratories now in operation is eight—the physical, the chemical, the physiological, the mechanical, the mining and assay, the botanical, the pharmaceutical, and that for agricultural chemistry. These are supplied with extensive and well selected apparatus, and afford the means not only for illustration and practice, but also for original investigation. An appropriation of twenty-five hundred dollars has been recently expended in procuring additional apparatus for the mechanical laboratory; and the same amount in equipping the laboratory of agricultural chemistry.

CHAPEL EXERCISES.

A daily exercise is held in the University lecture room, at which the attendance of all students is required, except when excused for special reasons.

The services are usually conducted by the President, but occasionally by other members of the Faculty or by some visiting clergyman. Instead of the ordinary services, selections are sometimes read or remarks made to the students on themes connected with religion or morals.

LITERARY SOCIETIES.

The Alcyone and Horton Literary Societies have commodious and well furnished halls in the main building. The Browning Literary Society, composed of young ladies, also has a hall which has been neatly and tastefully fitted up. All these societies meet weekly. The membership is large, and the work offers to the student a very desirable training in composition, public speaking and parliamentary order.

THE OHIO AGRICULTURAL EXPERIMENT STATION.

The State has established an agricultural experiment station, which is now located at the University, and is under the direction of the Professor of Agriculture. The station is sustained by appropriations from the State.

The experiments and investigations are carried on both in the field and in the laboratory, and deal with such great agricultural interests as grain raising, stock farming and dairy husbandry, fruit and vegetable culture, and forestry.

The station is prepared to test varieties of seeds and plants; to analyze and test fertilizers and manures; to examine seeds that are suspected of being unsound or adulterated; to identify and name weeds and other plants; to investigate and describe, when known, the habits of injurious and beneficial insects; and other work of a similar character that properly comes within its province.

THE OHIO METEOROLOGICAL BUREAU.

In 1882, the Legislature established a state meteorological bureau, of which the Professor of Physics is director. There is provided at the University a full equipment of standard instruments for meteorological observations. Corresponding equipments are also provided for voluntary observers throughout the State. At the present time, the Bureau receives regular reports from about forty stations.

THE STATE FORESTRY BUREAU.

This bureau has been established and located at the University by the Legislature for the purpose of inquiring into the best means of preserving and utilizing the forests of the State. The board of directors has organized and begun its work.

THE BATTALION.

Under the law of Congress establishing the University, it is required that instruction shall be given in military science and tactics. In accordance with this provision, an officer of the regular army has been detailed to take charge of the department, and the Trustees have directed that all male students, except Seniors, Juniors, and such others as may be specially excused, shall be enrolled in the battalion. A uniform has been prescribed, with which each member is required to provide himself; and one hour a day is devoted to drill, except on those days when instruction in tactics is given.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

One of the most commendable organizations in the University is a branch of the International Young Men's Christian Association. It was begun about four years ago by a few Christian students, and has grown in numbers and influence ever since. A pleasant room near the University and convenient to the greater number of students, is comfortably furnished, and used exclusively for its meetings. Services for Bible study, praise and prayer are held every Saturday evening, and on Sunday afternoons there are devotional exercises, discussions of moral questions, and excellent talks for young men. New students are made cordially welcome, and young church members will here enjoy Christian influences and fellowship in college life.

TERMS AND VACATIONS.

The first term of each college year begins on the Wednesday following the tenth day of September, and closes on the Wednesday preceding Christmas. The second term begins on the Wednesday following the first day of January, and closes on the Wednesday following the twenty-sixth day of March. The third term begins on the Wednesday following the second day of April, and closes on Commencement Day, which is the Wednesday following the eighteenth day of June.

Regular college exercises are omitted on Thanksgiving Day and the day following, on the twenty-second day of February, and on Decoration Day.

REGISTRATION DAY.

All students are required to register and procure their class cards on the first Wednesday of each term, between the hours of 9 A. M. and 12:30 P. M., or between 2 and 5 P. M., and no student, after having once been admitted to the University, will be allowed to register after the close of registration day, except on presentation in writing to the secretary of his committee of a satisfactory excuse for his delinquency.

College work begins in accordance with the program on the first Thursday of each term.

DEGREES.

I. GRADUATE DEGREES. The University confers upon students who have completed the general courses in Agriculture, Arts, Philosophy, or Science, the respective degrees of Bachelor of Agriculture, Bachelor of Arts, Bachelor of Philosophy, and Bachelor of Science. Those who have completed the several technical courses in Engineering, receive the respective degrees of Civil Engineer, Mechanical Engineer, and Engineer of Mines. The degree of Doctor of Veterinary Medicine is conferred upon those who have completed the course in Veterinary Medicine. The degree of Graduate in Pharmacy is conferred upon those who have completed the course in Pharmacy.

II. POSTGRADUATE DEGREES. Masters' degrees are conferred upon graduates in Arts, Philosophy, or Science at the end of not less than one year's residence, during which the candidate is required to pursue and complete an approved course of study in the University. He is required, in addition, to present an acceptable thesis upon some subject connected with his course of study. Masters' degrees are conferred without residence upon graduates of this institution, upon the same conditions of study and thesis as above; but this degree will not be so conferred within less than three years after graduation.

The degree of Doctor of Philosophy is conferred upon Bachelors of Arts and Bachelors of Philosophy, and the degree of Doctor of Science upon Bachelors of Science and graduates in the full technical courses, at the end of not less than three years' residence and study, during the latter two years of which the candidate is required to pursue and complete an approved course of study in at least two distinct departments of the University. He is, in addition, required to present an acceptable thesis, embodying an original research.

EXPENSES.

I. COLLEGE DUES.

There is no charge for tuition in any department of the University; but a charge of $5 a term, or $15 a year, is made against all students, under the head of incidental expenses, and students in the laboratories are required to pay fees to cover, in part, the cost of materials consumed, and the deterioration of the expensive instruments employed. The fee in the chemical laboratory is $10 per term; in the laboratory of agricultural chemistry or pharmaceutical laboratory, $8 per term; in physical and mining laboratories, $7 per term; in the mechanical and physiological laboratories, $5 per term; in the botanical laboratory, $2 per term; in the laboratory of economic botany, $1 per term, and in preparatory botany, 50 cents per term. These dues are required at the opening of each term as a condition of admission to classes.

II. OTHER EXPENSES.

There are two dormitories on the grounds for the use of students. The smaller of these affords unfurnished rooms, rent free, to such students as desire to board themselves, and thus to reduce their expenses to a minimum. Twenty students can be accommodated in this building, two students being assigned to each room. The expense of living in this way falls below $2 per week.

The larger dormitory will accommodate more than sixty students. It is, for the present, turned over to the University club, rent free. Board, furnished room, fuel, light and washing are, at present prices, supplied for about $3 a week. New students will not, however, be admitted to the club without special recommendation to the President of the University.

Boarding clubs are also formed in the neighborhood of the University. Within the last year four such clubs have been organized with very satisfactory results. Furnished rooms were rented at 75 cents to $1 a week for each student, and the cost of board was about $2 a week.

Board, with furnished rooms, can be obtained in private families, within convenient distances of the University, at rates varying from $4 to $5 a week, The ruling rate may be taken as $4.50 a week for young men and $5 for young women.

A uniform has been adopted, with which all members of the battalion are required to provide themselves. Its cost is about $23.

The expenses of a college year will include the following items:

College dues	$15		$15
Board, rooms, etc., at $3 a week	114	at $4.50	171
Total	$129		$186

This estimate provides for light and fuel but does not include text-books or charges for laboratory supplies. Students boarding themselves can reduce the lower of these estimates at least $30, making a total of less than $100.

No buildings are provided on the University grounds for the residence of young women. Boarding places in respectable families are secured for them, but the Faculty is not so situated that it can exercise supervision over their conduct out of college hours. Parents who place their daughters in the University should be well satisfied as to their discretion, or else should leave them under the care and control of the family with which they board.

EMPLOYMENT.

There is a large amount of work on the University farm which can be performed to advantage by the students, and for which they are paid at current rates for such labor. A number of students defray all their expenses in this way. In the assigning of work preference is given to students in the department of Agriculture, and to those who are ready to devote a certain number of hours each day to the task required. The University does not guarantee work to all applicants.

ADMISSION.

The University is open to students of both sexes. Students entering from other colleges are required to bring certificates of honorable dismission.

The entrance examinations for 1888 will be held on Monday and Tuesday, June 18 and 19, and on Monday and Tuesday, September 10 and 11.

Admission to the College Classes.—Candidates for admission must be at least sixteen years of age and must be provided with credentials from their last instructor or from the last institution with which they have been connected.

Candidates will be admitted to the Freshman class on the completion of the work of the Preparatory Department; on examination in that or equivalent work; or on presentation of diplomas from such high schools or academies as the Faculty shall from time to time designate; subject, however, in the last case, to conditions in such preparatory branches as are not covered by their diplomas.

Candidates for advanced standing who do not come from some other university or college, will be examined in the studies preparatory to admission to the collegiate courses, and also in such undergraduate studies as they may ask to be credited with in advance. Students who have completed at least one year's work in an approved college, and who bring official certificates describing their courses of study and scholarship, and letters of honorable dismission, will be admitted without examination, except such as may be necessary in order to determine what credits they are to receive for work done in the college from which they have come, and what courses of study they may pursue with profit in the University.

Admission to Other Courses.—Candidates for admission to the course in Veterinary Medicine, or the Short Course in Agriculture will be examined in orthography, writing, grammar, geography, and arithmetic. Candidates over twenty-one years of age are admitted to the latter course without examination.

Candidates for admission to the course in Pharmacy will be examined in grammar, geography, arithmetic, algebra, and Latin. At present candidates who have had two years' experience in a drug store will be admitted without examination in algebra or Latin; provided that if any such student afterwards becomes a candidate for a degree, he shall take the omitted examinations before the degree is conferred.

For admission to either of these courses high school diplomas and teachers' certificates for a year will be accepted in lieu of examination in the subjects which they include.

Admission to Special Studies.—Students who desire to pursue special lines of work in the Collegiate Department of the University and do not desire to become candidates for degrees, will be admitted on the following conditions:

1. When the greater part of the special work lies in the courses in Arts and Philosophy the regular entrance examinations must be passed.

2. When the greater part of the special work lies in the course in Science or in the technical courses, the examination in the language required for admission may be omitted at option of the appropriate committee.

3. Applicants who are not less than twenty-one years of age may, after passing examination for admission to the Preparatory Department, be excused by the appropriate committee from such studies or examinations in the preparatory course as it may deem best; provided that if any such student afterwards becomes a candidate

for a degree, he shall pass the omitted examinations at least one year before the degree is conferred. In the mechanical department the limit in age for such student is eighteen years instead of twenty-one. On entering the University, students desiring to pursue special work, are required to lay before the proper committee, for approval or modification, a written statement of the end they have in view, the studies proposed for the attainment of that end, and the probable period of attendance. Such students will be held as strictly to their accepted schemes of work as are regular undergraduates to their courses of study. Permission to enter as special undergraduates will be refused to all of whose definiteness of purpose the committee fails to receive satisfactory evidence, and will be withdrawn whenever the conditions on which it was granted cease to exist.

MATRICULATION.

Each student, on being admitted to the college classes, shall sign the matriculation book, and shall be certified by the Secretary of the Faculty to the secretary of the appropriate committee, with a statement of the course and class to which he is admitted, and what conditions, if any, are imposed.

Each special student, on being admitted to the work of the college classes, shall sign the matriculation book, and shall be certified as such to the proper secretary.

THE CLASSIFICATION OF STUDENTS.

Collegiate students are classified as follows: 1. Postgraduates; 2. Regular Undergraduates; 3. Special Undergraduates.

Postgraduates are graduates of this or other approved colleges or universities who are pursuing studies in advance of those represented by their respective degrees as here conferred.

Regular undergraduates are the members of the four college classes and regular students in the shorter courses. They are required to enter on the prescribed work of their respective courses, and in case of deficiency in the studies of the class to which they have been assigned, to remove such deficiency as speedily as possible, in the manner prescribed by the proper committee.

Special undergraduates are students who have attained college rank, and have been admitted to pursue special lines of work. But all students pursuing such special work, who are more than fifteen hours in arrears of regular freshman work, will be considered and classed in the preparatory department.

THE SCHOOLS.

The collegiate work of the University is divided into five schoools, as follows:

THE SCHOOL OF AGRICULTURE AND VETERINARY MEDICINE consists of those departments represented in the courses leading to the degrees of Bachelor of Agriculture and Doctor of Veterniary Medicine, and of the Short Course in Agriculture.

THE SCHOOL of ARTS AND PHILOSOPHY consists of those departments represented in the courses leading to the degrees of Bachelor of Arts and Bachelor of Philosophy.

THE SCHOOL OF ENGINEERING consists of those departments represented in the courses leading to the degrees of Civil Engineer, Mechanical Engineer, and Engineer of Mines.

THE SCHOOL OF SCIENCE consists of those departments represented in the course leading to the degree of Bachelor of Science.

THE SCHOOL OF PHARMACY consists of those departments represented in the course leading to the degree of Graduate in Pharmacy.

Each school is under the direction of a standing committee of the Faculty, having power to act in all matters pertaining to the studies of students in each school, in the transfer of students from one school to another, and in matters of minor discipline.

Every undergraduate student enters one of the above schools. In case of irregularity, he is assigned to that one in which the majority of his studies is found.

STANDING.

The standing of students is reported at the end of each term as "passed with merit," "passed," "conditioned," or "failed." This standing is determined by an examination upon the work of the term; but when two or more written examinations have been held in any study during the term, the professor in charge of the department in which the study is pursued may assign credit for the term's work, without the final examination, to such students as have passed the mid-term examinations and given other satisfactory evidence of their proficiency.

The standings "passed," and "passed with merit," indicate that the student has obtained full credit for the term's work in the study in which this standing is obtained.

The standing "conditioned" indicates that credit for the term's work in the study in which the condition was incurred, is deferred. The student is given an opportunity in the following term to obtain this credit by a re-examination; or, if the study be a continuous one, the professor in charge may, at his discretion, excuse the student from re-examination, and allow credit to be obtained by successfully pursuing the study during the following term. If the student thus excused from re-examination does not pass upon the work of the second term, he is reported as "failed" in the work of both terms.

The standing "failed" indicates that no credit is given for the term's work in that study in which the failure is incurred, and that the student will be required to pursue the same study, in class, in the following year. In case of failure in any continuous study, the work of the term in which the failure occurred must be repeated, in class, before any subsequent term's work in that study can be commenced.

Unexcused absence from any regular examination is construed as a failure therein.

At the close of each term students must obtain credit for two-thirds of their work for the term in order to retain their connection with the University; but if students who have not passed in the requisite amount of work can make good their deficiency by the removal of conditions, they may do so at the beginning of the following term, and thus reinstate themselves.

Students reported at the end of any term as failed in one half of their work, forfeit their connection with the University.

AMOUNT OF WORK.

No student is permitted to take less than fifteen, or more than eighteen hours a week, of class-room work, except by special permission of the committee of the school in which he is enrolled; and no student conditioned in any study will be permitted, during the following term, to take more than the regular work of his class.

THE PREPARATORY DEPARTMENT.

STANDING COMMITTEE.

THE PRESIDENT OF THE UNIVERSITY, *Chairman, Ex-Officio.*

PROFESSOR KNIGHT, *Secretary.*

ASSOCIATE PROFESSOR EGGERS, *Assistant Secretary.*

PROFESSORS DERBY, LAZENBY, THOMAS, BOHANNAN, AND KILBOURNE.

THE PREPARATORY DEPARTMENT.

GENERAL INFORMATION.

This department is under the immediate control of a standing committee of the Faculty, which supervises the studies of pupils and their relations to the University. Pupils in this department are subject, in general, to the same rules and regulations as the students of the Collegiate Department. Their attendance at the University is required only during the hours of recitation and other prescribed college exercises, such as drill, chapel, etc., the preparation of their lessons being made elsewhere.

The classes in this department are under the immediate supervision of the college professors, and many of them are taught by the professors in person.

The preparatory courses are provided for those who enter the University directly from the public schools. The one leading to the general courses and to the courses in Engineering, extends through two years, and includes the studies usually taught in the better grade of high schools. The one leading to the courses in Agriculture and Veterinary Medicine is one year in length. For terms of admission to the latter see page 166.

Candidates for admission to the Preparatory Department must be at least fourteen years of age, and must be provided with credentials from their last instructor or the last school with which they have been connected.

Graduates of the high schools of the State are admitted without examination. Applicants having a teacher's certificate of twelve months are also admitted without examination, except in Latin, and in algebra when this study is not included in the certificate. Other candidates must pass a satisfactory examination in the branches taught in the common schools, viz.: orthography, writing, grammar, geography, arithmetic and algebra through simple equations. Pupils preparing for admission to the course in Science or one of the courses in Engineering take German. Candidates for the course in Arts or Philosophy take Latin.

For admission to the preparatory course in Latin, one year of Latin is required. This will include the elements of the grammar, with some good beginning book and one book of Cæsar's *De Bello Gallico.* Equivalents will be accepted for Cæsar. The Roman method of pronunciation is preferred.

Pupils desiring to prepare for special undergraduate courses in the Collegiate Department must first obtain admission to the Preparatory Department. They must then make application to the committee of the appropriate collegiate school, which will certify to the Committee of the Preparatory Department the studies required as a preparation for the course proposed.

The entrance examinations for 1888 will be held at the University on Monday and Tuesday, June 18 and 19, and on Monday and Tuesday, September 10 and 11. The examinations in geography and grammar will take place on Monday, those in the other branches on Tuesday.

EXAMINATIONS.

In accordance with the rules of the Faculty, a written examination of each class is held at the close of each term, and the standing of pupils is reported as "passed with merit," "passed," "conditioned," or "failed."

Pupils conditioned in any study at the close of a term are held for examination in that study during the following term at such time as may be designated by the professor in charge of the department in which the condition was incurred.

At the close of each term pupils must pass in examination in studies representing at least ten hours a week in order to retain their connection with the Department. If pupils who have not passed in the requisite amount of work can make good their deficiency by the removal of conditions, they may do so at the beginning of the following term.

Pupils failing in examination in studies representing ten hours a week, forfeit their connection with the department.

Pupils who are reported at the end of a term, or at the beginning of the following term, as failed in any continuous study, are dropped from the class in which the failure occurs.

Pupils reported as failed in any examination are required to repeat the study in which they fail, in the corresponding term of the following year, unless excused by the Committee.

Unexcused absence from any examination is construed as a failure therein.

DRILL.

All male students, except those who are specially excused by the President of the University, are required to pursue the study of military science, and are enrolled for drill in the battalion. See pages 156 and 163.

DISCIPLINE.

Four demerit marks are recorded against a pupil for every unexcused absence from a class, from drill, or from chapel; two for every unexcused failure in recitation; and one for every unexcused tardiness.

When any pupil has received ten demerit marks, he is admonished by the President.

When any pupil has received twenty demerit marks, notice thereof is sent to his parent or guardian.

When any pupil has received forty demerit marks, his connection with the Department is thereby forfeited.

No account of demerits is continued longer than the close of an academic year.

Other delinquencies are dealt with as the circumstances in each case may require.

COURSES OF STUDY.

I. Preparatory to the General Courses and the Courses in Engineering.

Each study occupies five hours a week.

Pupils preparing for the course in Arts and Philosophy will take Latin; others will take German.

THE FIRST YEAR.

FALL TERM.—LATIN, Caesar and Virgil; *or* GERMAN, Brandt's German Grammar and easy prose reading; ALGEBRA, Wentworth's Elements of Algebra; ENGLISH, Welsh's Essentials of English.

WINTER TERM.—LATIN, Virgil; *or* GERMAN, Brandt's Grammar and easy prose reading, continued; ALGEBRA, Wentworth's Elements of Algebra, continued; UNITED STATES HISTORY, Johnston's History of the United States.

SPRING TERM.—LATIN, Virgil; *or* GERMAN, Brandt's Grammar, continued, and German fiction; GENERAL HISTORY, Swinton's Outlines of the World's History; BOTANY, Wood's Class Book of Botany.

THE SECOND YEAR.

FALL TERM.—LATIN, Cicero; *or* GERMAN, grammar reviewed, German prose, reading at sight; GEOMETRY, Wentworth's Geometry; PHYSICAL GEOGRAPHY, Geikie's Physical Geography.

WINTER TERM.—LATIN, Cicero; *or* GERMAN, translations and reading at sight; GEOMETRY, Wentworth's Geometry, continued; PHYSICS, Gage's Physics.

SPRING TERM.—LATIN, Cicero; *or* GERMAN, Klemm's Geschichte der Deutschen Literatur; PLANE TRIGONOMETRY, Chauvenet's Trigonometry; PHYSICS, Gage's Physics.

II. Preparatory to the Courses in Agriculture and Veterniary Medicine.

Each study occupies five hours a week, with the exceptions of Field Measurements and Mechanical Laboratory, which occupy three hours each.

FALL TERM.—PHYSICAL GEOGRAPHY, Geikie's Physical Geography; GEOMETRY, Wentworth's Geometry; AGRICULTURAL CHEMISTRY, lectures and laboratory work.

WINTER TERM.—FIELD MEASUREMENTS; MECHANICAL LABORATORY; PHYSICS, Gage's Physics; AGRICULTURAL CHEMISTRY, lectures and laboratory work.

SPRING TERM.—BOTANY, Wood's Class Book of Botany; PHYSICS, Gage's Physics; AGRICULTURAL CHEMISTRY, lectures and laboratory work.

ALUMNI.

ALUMNI ASSOCIATION.

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Clara Fisher, Celina, O	*Vice-President.*
W. L. Peters, Columbus, O	*Secretary.*
Frederic Keffer, Columbus, O.	*Treasurer.*

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Charles E. Higbee	four years.
Harwood R. Pool	three years.
J. P. Jones	two years.
C. C. Howard	one year.

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The Officers of the Association.

LIST OF ALUMNI.

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F. W. Sperr, E. M., Arizona Territory, mining engineer.
E. M. Van Harlingen, B. Sc., Corpus Christi, Texas, U. S. Signal Service.

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J. B. Wikoff, B. Ph., Columbus, O., attorney-at-law.

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G. R. Twiss, B. Sc., Youngstown, O., principal of high school.

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H. P. Smith, Cincinnati, O., curator of natural history museum.
W. P. Vandervoort, E. M., Morrow, O., teacher.
W. B. Viets, E. M., Columbus, O., ass't analytical chemist, O. S. U.
S. P. Watt, M. E., Columbus, O., draughtsman, Wire Grip Co.

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EIGHTEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

Ohio State University,

TO THE

Governor of the State of Ohio,

FOR THE YEAR 1888.

COLUMBUS:
THE WESTBOTE COMPANY, STATE PRINTERS.
1889.

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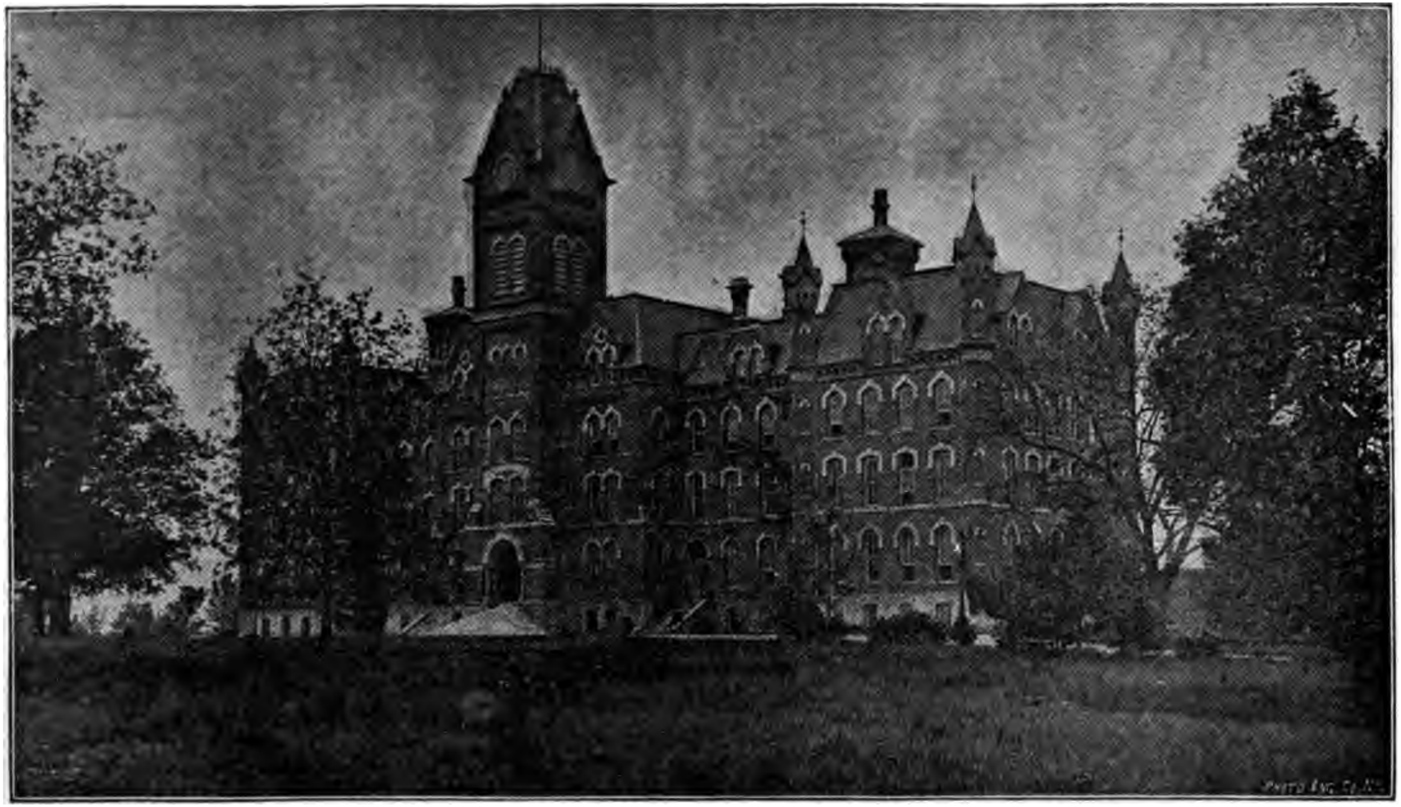

OHIO STATE UNIVERSITY.

EIGHTEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

Ohio State University,

TO THE

Governor of the State of Ohio,

FOR THE YEAR 1888.

COLUMBUS:
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*Resigned October 25, 1888. David M. Massie, Chillicothe, appointed to vacancy.

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Associate Professor of the English Language and Literature.

COLUMBUS, OHIO, *November* 15, 1888.

To His Excellency, GOVERNOR JOSEPH B. FORAKER:

SIR: I have the honor to transmit herewith the eighteenth annual report of the board of trustees of the Ohio State University.

Very respectfully,
Your obedient servant,
ALEXIS COPE,
Secretary of Board.

Report of Trustees.

OFFICE OF THE BOARD OF TRUSTEES OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, *November* 15, 1888.

Hon. JOSEPH B. FORAKER, *Governor of Ohio:*

SIR: In compliance with law the board of trustees respectfully submit the eighteenth annual report of the Ohio State University.

The part of the irreducible debt of the state, which forms what may be called the permanent endowment of the university, has received no additions, but remains the same as last year, to wit: $537,841.46, upon which the interest computed semi-annually is $32,270.48.

The receipts from various sources, exclusive of state appropriations, and including the balance in the hands of the treasurer at the close of the last fiscal year, have been as follows:

Balance in hands of treasurer November 15, 1887	$7,439 62
Interest on endowment	27,270 48
Term fees of students	6,042 25
Rents of residences	2,567 50
Sale of Virginia military lands	413 33
Supplies sold to students	50 71
Sale of old iron, paper, etc	28 87
Sale of plants, horticultural department	26 00
Sale of farm stock and implements	2,500 00
State appropriation expended in repairing tower	2,735 00
Total receipts	$49,073 76

The disbursements from current funds have been as follows:

Salaries	$36,157 77
Ordinary repairs	1,427 68
Fuel and care of buildings	1,970 43
Department supplies	3,086 92
Furniture	753 55
Advertising	1,387 51
Printing and blank books	307 78

Equipment pharmacy laboratory	507 88
Water rents	464 86
Centennial exhibits	346 85
Repairs Virginia military lands, residences	210 15
Clearing woods	102 36
Expenses attending farmers' institutes	102 30
Telephone service	100 50
Miscellaneous	577 60
Total disbursements	$47,504 14
Balance in hands of treasurer November 15, 1888	1,569 62

In said accounts are included the funds received from the sale of the Virginia military lands, which have not been used in building and maintaining residences for the professors, in accordance with the act of April 17, 1882. The amount of said funds in the hands of the—

Treasurer November 15, 1887, was	$9,250 73	
Receipts during the year	433 33	
Total		$9,684 06
Disbursements during the year—		
Repairs, residences of professors	$210 15	
Total		210 15
Balance, November 15, 1888		$9,473 91

Since the repeal of section six of the act of April 3, 1873, such balances have been carried into the account of the current funds of the university.

The face value of the outstanding collectible notes received from the sale of said lands is $3,032.34.

To show fully the actual receipts and disbursements, there must be added to the amounts mentioned in the report of the treasurer, the several sums received from appropriations made by the general assembly, and paid on warrants of the auditor of state, except the sum of $2,735 appropriated to repay the university for a like sum paid out of current funds to repair the tower of the main building. Said last named sum was paid to the treasurer of the university, and placed to the credit of the current funds, and is accounted for in the treasurer's report. Below is given a tabulated statement showing the balances of the several state appropriations November 15, 1887, the amounts appropriated and expended during the year, and the balances November 15, 1888:

Name of appropriation.	Balances Nov. 15, 1887.	Appropriated during fiscal year ending Nov. 15, 1888.	Total amount subject to draft during year ending Nov. 15, 1888.	Expended during year ending Nov. 15, 1888.	Balances Nov. 15, 1888.
Ordinary repairs	$41 50	$2,500	$2,541 50	$2,526 02	$15 48
Expenses of trustees	379 73	500	879 73	384 25	495 48
Fuel and care of buildings	574 79	2,000	2,574 79	2,345 20	229 59
Improvement of campus	412 45	500	912 45	881 90	30 55
Laboratories	5 51	....	5 51	....	5 51
Repairs, gas-works	81 00	....	81 00	81 00	....
Green house	450 00	600	1,050 00	646 00	404 00
Library	503 68	1,000	1,503 68	1,495 69	7 99
Veterinary museum, etc	15 01	....	15 01	....	15 01
Equipment horticultural dep't	1 97	....	1 97	....	1 97
Equipment laboratory agricultural chemist	07	....	07	....	07
Additions to mechanical dep't	2 92	....	2 92	....	2 92
Salaries of teachers, etc	2 51	10,000	10,002 51	10,002 48	03
Extension of gas mains	....	500	500 00	498 20	1 80
Equipment, etc., school of mines	....	3,500	3,500 00	1,182 87	2,317 13
Appliances teaching anatomy, etc	....	1,000	1,000 00	564 84	435 16
Centennial exhibits	....	500	500 00	500 00	....
Refunding amount spent in repairing tower	....	2,735	2,735 00	*2,735 00	....
Totals	$2,471 14	$25,335	$27,806 14	$23,843 45	$3,962 69

*Paid to treasurer to credit of current funds.

The following table shows the disbursements from the current funds, added to those made from state appropriations:

Purpose for which disbursed.	Paid out of state appropriations.	Paid out of current funds.	Total.
Ordinary repairs	$2,526 02	$1,427 68	$3,953 70
Expenses of trustees	384 25	....	384 25
Fuel and care of buildings	2,345 20	1,970 43	4,315 63
Improvement of campus	881 90	....	881 90
Repairs of gas-works	81 00	....	81 00
Green-house	646 00	....	646 00
Library	1,495 69	....	1,495 69
Salaries	10,002 48	36,157 77	46,160 25
Extension of gas-mains	498 20	....	498 20
Equipment, etc., school of mines	1,182 87	....	1,182 87
App. for teaching anatomy, etc	564 84	....	564 84
Centennial exhibits	500 00	346 85	846 85
Department supplies	....	3,086 92	3,086 92
Advertising	....	1,387 51	1,387 51
Printing	....	307 78	307 78
Furniture	....	753 55	753 55
Pharmacy laboraty	....	507 88	507 88
Water rents	....	464 86	464 86
Repairs Virginia military land, residences	....	210 15	210 15
Expenses farmers' institutes	....	102 30	102 30
Clearing woods	....	102 36	102 36
Telephone service	....	100 50	100 50
Miscellaneous	....	577 60	577 60
Totals	$21,108 45	$47,504 14	$68,612 59

From the foregoing it appears that the total receipts for the fiscal year, including balances on hand November 15, 1887, have been as follows:

Current funds	$49,073 76	
State appropriations	25,071 14	
Total receipts		$74,144 90

Disbursements.

Current funds	$47,504 14	
State appropriations	21,108 45	
Total disbursements		$68,612 59
Leaving a balance November 15, 1888		$5,532 31

Of which $1,569.62 is in the hands of the treasurer, and $3,962.69 is in the state treasury to the credit of the several state appropriations.

It will be seen from the foregoing that the expenditures for ordinary repairs was $1,427.68 in excess of the state appropriations for that purpose. It was deemed advisable to put the buildings, fences, etc., in as good repair as possible in anticipation of the centennial, and it was found necessary to thoroughly repair the boilers and the steam-heating apparatus of the chemical building. The excess expended for this purpose has been paid out of the current funds of the institution as has been the custom heretofore. It is to be regretted that the state appropriation for repairs of buildings, etc., has seldom been sufficient to keep them in proper order, and that the other funds of the university have to be used for this purpose.

The small appropriation of $500 for extending the gas mains has been judiciously expended in piping gas to the horticultural building and residences of professors, and in erecting eight lamp-posts at various parts in the grounds. A main has also been laid to the new building of the Agricultural Experiment Station, which will become a consumer when the building is completed. Meters have been placed in the residences, and the price to consumers has been fixed at $1.00 per thousand cubic feet. The gas thus furnished can be supplied at no additionel cost for labor, is a great convenience to those using it, and will add a small sum to the revenues of the institution. The lamp-posts add greatly to the attractiveness of the grounds and security of the buildings and other property.

The appropriation of $1,000 for the library has been well expended, but is grossly inadequate for its growing requirements. A much larger sum is needed to provide for its proper growth. The report of the librarian shows that the number of volumes in the library June 20, 1888, exclusive of pamphlets, was 8,411. There were added by purchase from state appropriations and received by gifts, 703 volumes. Since the date of the librarian's report, through the zealous efforts of Prof. Eggers and the liberality of some of our German citizens, and others who are interested in affording increased facilities for the study of the German language and literature, quite an important addition has been made to the German department of the library, for which the board of trustees makes due acknowledgment. These books and those purchased since the close of the university year probably increase the total number of volumes to 9,000. The books are well selected, and form a very valuable collection. They should be placed where they will not be exposed to danger of loss from fire. The room in which they are preserved is too small to contain them, and at the same time afford students and faculty proper opportunities and space for consulting them. One of the great needs of the university is a fire-proof building where they can be properly preserved. In this connection attention is again called to the recommendation of Prof. Orton for a fire-proof building for the geological collection, which has become so valuable, that steps should at once be taken for its adequate protection. The library could be accommodated in the same building until a separate building could be provided for it. The necessity for such a building has been repeatedly set forth in the annual reports. It is one of the most imperative needs of the university, and should be no longer delayed.

The small appropriation for the improvement of the campus has been expended in regraveling the walks and drives and in improving and caring for the lawns and shrubbery. A topographical survey of the grounds has been made by the students in the civil engineering course, from which a plan for their future improvement has been prepared by a skillful landscape gardener. To carry out this improvement much larger appropriations will be required. The benefits of beautiful and tasteful surroundings have an educational importance which should not be overlooked.

The desirability of establishing at the university a botanical garden and arboretum has been set forth in previous reports. The plan above alluded to makes provision for it, and in pursuance of this object, a rare and valuable collection of hardy trees and shrubs has been secured from the exhibits at the Ohio Centennial. It is hoped that funds may be furnished from time to time for proper additions to this collection.

The appropriation of $1,000 for appliances for teaching anatomy and physiology has been partly expended in the purchase of additional equipment for the department of physiology, thus increasing the efficiency of this important department. The balance remaining on hand will enable the professor in charge to make still further valuable additions.

Through the efforts of the Ohio Institute of Mining Engineers and those interested in the mining industries of the state, the general assembly at its last session passed an act providing for increasing the efficiency of the school of mines, and an appropriation of $3,500 was made for its equipment, support and maintenance. Encouraged by such action, the trustees have employed an assistant professor to give instruction in the practical operation of mines, and have purchased additional equipment necessary for such instruction. A shorter course in mining engineering has been offered to those who are engaged in such business, and who can not take the longer course. The development of this important department of industrial education has met with marked favor from those for whom it was intended, and also from those interested in the development of the mineral resources of the state. To continue the work thus begun, the same appropriation will be required for the coming year. Professor Lord and his able and zealous assistant, Professor Sperr, have labored actively and earnestly in fitting up the department, to meet the new and larger requirements, and with proper financial support, will in a short time make the school of mines of the university one of the best in the country.

Among the appropriations asked for at the last session of the general assembly, was one for the purchase of the necessary equipment for a course in electrical engineering. Failing to obtain it, the energy and zeal of Professor Thomas have secured the loan of a steam engine and dynamos. These have been set up temporarily in the basement of the main building and have justified the offering of such a course. It is but a temporary expedient, however, and the loan is made with the expectation that the course will be made permanent, and that proper facilities therefor will be supplied by the state. A separate building and additional steam-power will have to be provided if such instruction is to be continued in a satisfactory manner.

The setting up of the steam engine and dynamos in the basement of the main building, above mentioned, has taken up about all the space which has heretofore been available for indoor military drill. There is now no place where the cadets can be drilled in bad weather. Military science and tactics are required to be taught in institutions founded on the congressional land grant, and experience has shown that the drill is very valuable as a means of physical training and in preserving the health of the students. A suitable place where the companies of the battalion can be formed and exercised during the inclement weather is very much needed. The chapel is too small, even for the ordinary daily religious exercises, and there is no suitable room for holding commencement and other public exercises. The board of trustees has respectfully recommended an appropriation for the erection of a building for an armory and gymnasium, so arranged that it could also be used for public occasions, such as university day and the annual commencement. The necessity for such provision is more urgent than ever before, and such recommendation is therefore earnestly secured. We are glad to report increasing interest in the military department. Under the prudent and able direction of Lieut. Kilbourne, the battalion has increased in numbers and efficiency. The military drill has been made valuable as a means of discipline, and has become an attractive and valuable part of the university life. Upon his recommendations, commissions have been issued to the commissioned officers and warrants to the non-commissioned officers, and, through the courtesy of General Axline, Adjutant-General of the state, the commissions have been recorded in that office, so that the experience of trained officers may be made available, should the state require their services in time of public danger.

In the last annual report, attention was called to the lack of proper accommodations for the department of pharmacy, and the opinion was expressed that some provisions should be made for additional room, or the work would have to be abandoned. Rather than discontinue so important a branch of industrial education, in which such satisfactory progress had been made, the board of trustees, during the summer vacation, fitted up a pharmacy laboratory containing 16 desks in a small room in the horticultural building, at an expense of about $500. As the room will soon be required for the proper work of the horticultural department, the desks have been made so that they can be taken apart and removed to other quarters. This provision has proved to be inadequate for the proper work of the pharmacy department, as there are already more laboratory students than the desks will accommodate. If this department of instruction is to be continued, a separate building, or an addition to the chemical building, large enough for lecture-room, store-room and laboratory, should be provided for it as soon as practicable. This department was established to supplement the legislation requiring examinations of all persons engaged in the pharmacy business, by providing a school where they could receive the proper instruction and training to enable them to pass such examinations, and it is hoped the legislature will see the wisdom of granting the necessary appropriations for its continuance. It should be made one of the permanent schools of the university.

The board of trustees, in the last annual report, called attention to the fact that the agricultural experiment station, in view of the congressional appropriation at its disposal, would doubtless desire to vary and extend its investigations and experiments, that all needed facilities therefor could be provided at the university, and the desire was expressed that the relations existing between the station and the university could be maintained or modified with increasing benefits to both institutions.

In furtherance of such desire, a conference between the board of trustees and the board of control of the agricultural experiment station was held early in December, 1887, at which the following understanding was reached:

"The board of trustees of the Ohio State University and the board of control of the Ohio Agricultural Experiment Station, hereby concurring in the wish to promote the interest and efficiency of both the institutions under their administration, have, after careful consideration, adopted the following understanding, believing it to be for their mutual advantage, viz.: It is understood that the Ohio Agricultural Experiment Station will be permitted to use the following-named real estate: All lands west of Neil avenue, extending to the north line of the university premises, except the two dormitories and the field adjacent on the north used as a play ground, and such portions of the pasture field adjoining, as may hereafter be designated by the trustees. Also the sixteen-acre field north of the college and east of Neil avenue, extending to the wood lot on the east; the said wood lot to remain with the university. It is understood that the university shall reserve such live stock, implements and personalty as it shall need for its own use; the station shall take such as it needs at a fair appraisement and pay for it when able, and the balance may be sold by the university.

"It is understood that the professors of the several technical departments shall have an opportunity to carry on original investigation and research and to instruct their classes in their respective lines of work on said land so far as possible.

"It is understood that the station will employ student labor whenever practicable.

"If questions arise between the university and the station, they shall be settled by arbitration, one arbitrator to be appointed by the university and one by the station; and if they differ, a third to be chosen by the two."

On the 21st day of February following, the two boards met and proceeded to appraise the stock and farm implements on the university farm. The appraisement was satisfactorily made, and the station agreed to take all said stock, implements, etc., except a team of horses, some sycamore lumber, a field roller and a small amount of commercial fertilizers then on hand. Said stock, implements, etc., were turned over to the station and immediate possession was given of the real estate described in the foregoing memorandum.

Cordial relations are maintained between the two institutions, and a spirit of mutual helpfulness is manifested. The station, while thus enabled to extend its experiments and enlarge its field of usefulness, has also increased the opportunities for students in the agricultural courses to obtain employment and closer knowledge of the practical details of farm life. The board make due acknowledgments for numerous courtesies received from the station during the year.

The number of students in attendance during the university year ending June, 1888, was as follows: Fall term, 335; winter term, 289; spring term, 268. The number enrolled at the present fall term is 385. The whole number of different students in attendance during the last year was four hundred and one, which is more than eleven per cent. larger than ever before.

At the commencement in June, 1888, upon the recommendation of the faculty, the following degrees were conferred upon the persons named:

The degree of bachelor of arts upon—

Chester Hardy Aldrich, Pierpont, Ohio.
Gaines Glenn Atkins, Columbus, "
Harry Hedges, Urbana, Ohio.
William Thomas Morrey, Chester Hill, Ohio.
Frank Milton Raymond, Akron, Ohio.
Wilbur Henry Siebert, Columbus, Ohio.

The degree of bachelor of philosophy upon—

Fred Samuel Ball, Portsmouth, Ohio.
Emma Boyd, Plain City, Ohio.
William Sterling Crawford, Cuyahoga Falls, Ohio.
Scott Anderson Webb, Jefferson, Ohio.
James Alva Wilgus, Conover, Ohio.
Howard Napoleon Thompson, Columbus, Ohio.

The degree of bachelor of science upon—

Josephine Maud Cathcart, Columbus, Ohio.
Edgar Wood Mix, Columbus, Ohio.
Emma Scott, Columbus, Ohio.
Walter McNab Miller, Columbus, Ohio, (class of 1885.)

The degree of engineer of mines upon—

Frederic Winder Brown, Zanesfield, Ohio.
Lucius Alvin Hine, Milan, Ohio.
F. L. Olcott Wadsworth, Wellington, Ohio.
William Oliver Scheibell, Mount Clair, N. J.

The degree of mechanical engineer upon—

Marshall Fremont Capron, Conneaut, Ohio.
George Bancroft Fravel, Columbus, Ohio.
Arthur Hartwell, Xenia, Ohio.
Benjamin Garver Lamme, Medway, Ohio.

And the degree of civil engineer upon—

Frederick Julius Cellarius, Dayton, Ohio.
Edward Albert Kemmler, Columbus, Ohio.
Charles Cutler Sharp, Sugar Grove, Ohio.
Clark J. Welch, Sandy Creek, N. Y.

The number of professors employed by the university is 16; associate professors, 5; assistant professors, 2; assistants, 5. Their positions, with the compensation of each, is shown elsewhere in this report.

After the close of the university year, Albert H. Tuttle, who had so ably filled the chair of zoology and comparative anatomy since its creation, and who had been identified with the institution almost from its organization, tendered his resignation, to accept the chair of biology and agriculture at the university of Virginia. The loss of Professor Tuttle is greatly deplored. He had made his department one of the strongest and most attractive of the university, and his influence was potent in shaping and directing its general policy. It was hoped that the university and the state would long have the benefit of his broadening powers and influence, but wider, possible opportunities, and a larger compensation than the laws of Ohio will permit to be paid, have taken him from the institution he has served so long and so well. The vacancy occasioned by his resignation has been filled by the election of D. S. Kellicott, Ph. D., of the state normal school of Buffalo, N. Y., a gentleman of scholarly attainments, who entered upon his duties at the beginning of the present term.

In the steps taken towards increasing the efficiency of the school of mines, it was found necessary to add to the teaching force of the department by the election of an assistant professor, to give instruction in the practical part of a miner's work. Such a person was found in F. W. Sperr, E. M., a graduate in the mining engineering course of the university in the class of 1883, and he was duly elected to such position. He came upon the field of his new labors during the summer vacation, and at once joined Professor Lord in active efforts to equip the department for the larger work upon which it has entered.

The work in the departments of history and political science, mathematics and Latin, having largely increased during the year, James A. Wilgus, B. A., of the class of 1888, was, at the June meeting of the board, elected assistant in Latin and history. His election has relieved assistant professor McCoard of his duties in the department of Latin, and enabled him to devote his time to the department of mathematics, where his whole services are required, and will also give the assistance so much needed in the other above-named departments. The foregoing are all the changes in the teaching force of the university since the last annual report.

At a meeting of the board of trustees held on the 21st day of February, 1888, the following resolution was unanimously adopted:

> "*Resolved*, that in the opinion of this board a thoroughly equipped department of manual training, for both young women and young men, should be added to the existing educational features of the university as soon as practicable."

In view of the wide interest manifested in this subject, the growing conviction that an education that does not include manual training is incomplete and unsatisfactory, and especially in view of the fact that the congressional grant provides that "the leading object of such institutions shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts," the trustees desire to present to your excellency and the general assembly the question whether the time is not opportune for granting an appropriation sufficient to equip a department of manual training at the state university.

Manual training schools are rapidly being established in many of the principal cities of the country. Means for their equipment and support are liberally supplied, but the great drawback is the difficulty in procuring competent teachers. The founding of such a department at the university would aid in supplying trained teachers for these schools and would place the university in accord with public sentiment on this important question. $50,000 would, in the opinion of the trustees, erect the necessary additions to the mechanical building, provide the necessary power, machinery, tools and eqipment. They respectfully ask the legislature to make such appropriation.

The appropriation of $500 by the legislature for the purpose of enabling the university to make proper exhibits at the Ohio centennial was supplemented by the sum of $450 appropriated from the current funds. A committee of the faculty took charge of the matter, and exhibits were made both at Columbus and Cincinnati. The sums appropriated were wisely expended, the exhibits were tastefully arranged, and have done much toward making the general public acquainted with the superior quality of the work done by the institution, and with the completeness of its equipment in many important departments.

It has long been the desire of the trustees and faculty that the university might be brought into closer relations to the high schools of the state, and an organic connection established between them. The university has for some time admitted to the freshman class graduates of high schools in towns of 5,000 population and over. At the meeting of the board held in last November, the faculty was authorized to appoint a committee of two of its members to visit high schools in towns of less than 5,000 population when requested so to do, with a view of ascertaining whether the graduates of such schools might be reasonably supposed to possess the necessary qualifications for admission to the freshman class. A number of high schools were visited and examined with favorable results, and a number of requests have been made for such visits and examinations. It is hoped that this work will continue until the high schools, generally, throughout the state, will become familiar with the requirements for admission to the university and will shape their courses of study with reference thereto.

The shorter course (of two years) in agriculture continues to attract quite a number of students from the farms who cannot afford to take the longer course leading to a degree. The free scholarship in such course which has been offered to one student from each county, who shall be recommended by the county agricultural society, has been accepted by students from the following counties: Clark, Cuyahoga, Fairfield, Fayette, Franklin, Fulton, Hancock, Morgan, Muskingum, Portage, Ross, Seneca, Stark, Summit and Van Wert.

When the advantages of such course are more fully understood, every county in the state will doubtless send its representative.

The attendance of the members of the faculty at the farmers' institutes held throughout the state during the winter months has the cordial approval of the board of trustees. During the past year, President Scott, Dr. Townshend, and Professors Tuttle, Lord, Weber, Lazenby and Detmers, ttended and delivered lectures at such institutes, and their expenses while so engaged were paid by the university. These institutes have been so valuable in many ways to the people of the state that trustees and faculty feel that they should be generously supported and encouraged by all the friends of popular education.

The condition of the university continues to be that of steady and substantial progress, as will be seen from the reports of President Scott and the members of the faculty, which are herewith submitted and made a part of this report. The president and faculty have been patient, faithful and zealous in the discharge of their important duties, and in every department there has been careful, thorough, conscientious work. Special attention is invited to the reports of the various heads of departments, where the work of the year is exhibited and suggestions made of needed and desirable changes and additions to still further increase the efficiency of the work being done.

The students, as a rule, have been earnest, industrious, orderly, and devoted to their work.

The board of trustees submit the following estimate of appropriations for the ensuing fiscal year:

Expenses of trustees	$ 500
Salaries	15,000
Ordinary repairs	3,500
Equipment school of mines	3,500
Fuel and care of buildings	4,000
Library	5,000
Department supplies	4,000
Improvement of campus	1,500
Green-house	600
Testing machine, mechanical department	800
Advertising	1,000
Equipment laboratory agricultural chemistry	600
Total	$40,000

We have no doubt the legislature will cheerfully grant the necessary appropriations for the current expenses and repairs, but the time has come when additional buildings and equipment are absolutely essential to the proper work of the university. As will be seen from the reports of the president and faculty, the number of students has largely increased, and the chapel and some of the laboratories are over-crowded. The pharmacy and military departments are without proper accommodations. Among the buildings required are a fire-proof building for the geological museum and library, a building for armory, drill-hall and gymnasium, a pharmacy building, an observatory, a building and equipment for a course in electrical engineering, and last, though not least, a building and equipment for a manual training department. The resources of the university are inadequate to supply even the smallest of these. If provided at all, the islature must furnish the means. In view of its present condition, we submit, for the serious consideration of your excellency and the general assembly, whether the time has not come when the policy of supplementing the income of the university by small annual appropriations should not be supplanted by the wiser plan of providing a fraction of a mill on the tax duplicate sufficient to provide for its proper growth and development. A twentieth of a mill would provide sufficient income for current expenses and repairs, and also for the much-needed additional buildings and equipment. The wisdom of such policy has been demonstrated in other less favored states, in the increased vigor and usefulness of their universities. The university is the child of the state. The land grant of congress, upon which it was founded, and the gift of Franklin county, which furnished the larger part of the funds for the purchase of the land and erection of its principal building, were made to the state. The title to the land upon which it is located is vested in the state absolutely. All of its property belongs to the state. Why should not the state cherish its own? The foundations have been laid for a great institution of learning, whose reputation already extends far beyond the borders of our own state. With the limited means at its disposal it has already accomplished much, but the meagerness of its income and its dependence upon the uncertain temper of the legislature for a large part of its current expenses, makes the tenure of faculty and teachers doubtful and insecure, and has a tendency to discourage their efforts in its behalf. We regret to say that within the last four years three of its able and eminent professors have resigned to accept similar positions in institutions in states of less wealth and importance. Their removal was a great loss to the university and to the state. A more generous policy would probably have enabled the university to retain their services. We record with pleasure that the present general assembly has manifested a more liberal spirit toward the institution. We trust that this spirit may continue, and that the wisdom of a permanent provision for the support of the university, as above recommended, will be approved. Without some such provision its progress will continue to be clouded and difficult. With it, it will soon become, as it should be, the crown of the educational system of the state and a controlling and benificent influence in our civilization.

ALEXIS COPE,
Secretary

The Annual Report of the President.

HON. THOMAS A. COWGILL, *President of the Board of Trustees:*

DEAR SIR: The president of the university has the honor to submit the following report for the year ending November 15, 1888.

At the beginning of the year the board of instructors consisted of the president, fifteen professors, five associate professors, one assistant professor, and four assistants; making in all twenty-six members. At the June meeting of the board of trustees Mr. Frederick W. Sperr, E. M., was elected assistant professor of mining engineering, and Mr. James A. Wilgus was elected assistant in Latin and history; increasing the total number of instructors to twenty-eight.

The resignation of Professor A. H. Tuttle in June left the chair of zoology and comparative anatomy vacant, and deprived the university of one of its strongest and most efficient men. Having been connected with the university from the first year of its organization, he was minutely acquainted with its history and work, and had performed an influential part in shaping its policy. To supply his place was a task of no slight difficulty; but the institution may be congratulated on its good fortune in the appointment of David S. Killicot, Ph. D., who brings to the position a well-earned reputation, large attainments, and a genuine scientific spirit.

The attendance of students for the last two years, as shown by the catalogue, was as follows:

	1886–87.	1887–88.
Graduate	1	11
Seniors	29	20
Juniors	24	19
Sophomores	40	35
Freshmen	58	70
Special	8—159	20—164
Briefer courses—		
Agriculture (two years' course)	19	28
Veterinary medicine	5	7
Pharmacy	12	21
Short mining	...— 36	5— 61

Preparatory—		
Second year	60	63
First year	68	96
Irregular	20—148	6—165
Total in all classes	344	401

The distribution, by courses, of the students in the four regular college classes for the two years was as follows :

	Totals.		B. A.		B. Ph.		B. Sc.		B. Ag.		C. E.		M. E.		E. M.	
	1886–87.	1887–88.	1886–87.	1887–88.	1886–87.	1887–88.	1886–87.	1887–88.	1886–87.	1887–88.	1886–87.	1887–88.	1886–87.	1887–88.	1886–87.	1887–88.
Seniors	29	20	6	1	7	7	3	8	...	...	5	1	5	1	3	1
Juniors	24	19	2	5	6	5	10	3	...	1	2	1	2	3	2	2
Sophomores	40	35	13	7	10	9	5	12	3	...	3	5	5	2	1	...
Freshmen	58	70	10	19	14	8	15	23	5	1	9	14	5	4	...	1
Totals	151	144	31	32	37	29	33	46	8	2	19	21	17	10	6	4

The whole number in the general courses was, in 1886–87, 90; in 1887–88, 110; in the four-year technical courses in 1886–87, 54; in 1887–88, 54; in the briefer technical courses in 1886–87, 61; in 1887–88, 61; making a total in the technical courses in 1886–87 of 95, and in 1887–88, of 115.

The number of women in attendance in 1886-87 was 46; in 1887-88, 51.

	1887.	1888.
Graduate	1	...
Seniors	4	2
Juniors	1	8
Sophomores	4	9
Freshmen	16	8
Special	...— 25	6— 33
Preparatory—		
Second year	7	6
First year	10	12
Irregular	3— 20	18
Total	46	51

The whole number of candidates for admission was, in 1887, 171; in 1888, 198.

	1887.	1888.
At the examination in June	22	40
At the examinatian in September, and since	149—171	150—198
Received	152	192
Graduates	.....—1	.....— 11
Juniors	1	1
Sophomores	2	2
Freshmen	28	26
Special	3— 34	7— 36

Briefer courses—				
Agriculture (two years' course)	14		21	
Veterinary medicine	1		1	
Pharmacy	8		11	
Mining		23	4	37
Preparatory—				
Second year	19		24	
First year	65		83	
Irregular	10	94	1	108
Total		152		192

The whole number of students enrolled the first term, 1887, at the date of my report was 338; the whole number enrolled the first term, 1888, to the present time, is 386, an increase of 48.

Of those in the short course in agriculture fourteen have entered on free scholarships. The whole number in this course at present is twenty-five, while that of last year was eighteen. The growth of the attendance in this department, though not as rapid as we have desired, has been steady and is likely to continue. The accommodations in the laboratory are already considerably exceeded, and temporary provision for a part of the class has been necessary. More desks and more room are much needed.

The recent act of the legislature providing for an enlargement of the department of mining and metallurgy has not only led to the election, as already stated, of an assistant professor of mining engineering, and to an increase of the facilities for instruction, but also to the adoption of a short course in mining, corresponding in length to the short course in agriculture. The favor with which the whole movement has been received and supported among those connected with the mining interests of the state, gives promise of a rapid extension of its benefits. Every reasonable concession will be made to young men of mature years and of some experience in mining, that they may be able to avail themselves of these advantages.

The suggestion for a similar movement made in my report last year, and presented in a more definite form by the professor of mechanical engineering in June, is renewed in his present report. A manual training school of high order, and under the immediate direction of a man who is thoroughly acquainted with the work, both in theory and in practice, would enable the university to perform a service suitable to its own character and strongly demanded by the existing conditions of society. An early appropriation for such a purpose is something for which I hope we may look with confidence to the state.

The equipment of the department of physics has been recently reinforced with a steam-engine of excellent workmanship and finish and a six-light dynamo. The former is a loan from the New York Safety Power Company, and the latter from the Thompson-Houston Electric Company.

Favors of this kind are not only of great immediate advantage, but they are indications of a disposition which we may hope to see increase till not a year will pass without generous gifts being made to the university. The relation of the university to the public, and its possible power of usefulness, may well invite the liberality of those who desire to use their means for the general good.

The arrival of the new engine and dynamo has created a new necessity. We have no suitable place for them. They have been set up temporarily in the basement of the main building, but we should not leave them long in a location so unfit for continuous work. A separate building should be provided without unnecessary delay.

These timely additions have enabled the professor of physics to offer a special course in electrical engineering, thus meeting a demand that has often been made upon us.

The extensions of our lines of instruction already mentioned are not the only ones that have been made. The professors have been emulous to push forward upon advanced ground. In mathematics two elective courses are now open beyond the calculus, which a few years ago marked the highest limit to which the subject was carried. In Latin an elective of three hours a week is introduced into the senior year of the courses in arts and philosophy. In political science an elective of two hours a week in international law is offered in the junior and senior years of the same courses. In French it is possible for students in the course in philosophy to take twice the amount that could be obtained a year ago; while German can be taken three years by students in the courses in arts and philosophy and four years by those in the course in science. But perhaps the most notable change in the courses of study is that which requires students in science to elect not later than the beginning of the junior year, one of the sciences in which laboratory instruction is given, to be pursued continuously to the end of the course. They are allowed to bestow the whole time allotted to elective work upon the science thus chosen, or for half this time they may elect other studies from any course taught in the university, with the single proviso that they are qualified for the studies they elect. This affords an opportunity to make very respectable attainments in a specialty. In chemistry, for example, a student may take the whole work of the freshman year; he may then elect the chemical laboratory for five hours a week through his sophomore year, and for ten hours a week during his junior and senior years. It is to be borne in mind also that it requires two hours of actual time to make one laboratory hour; ten hours a week really means, therefore, twenty hours. At the same time it is provided that the student shall not omit other studies and thus become narrow and one-sided. In the freshman and sophomore years chemistry constitutes less than one-third of his work, and in the junior and senior years it can not exceed two-thirds.

In what I have said two marked tendencies of the university are manifest, one industrial, the other scholastic; one reaching outward to meet and help the farmer, the mechanic, and the miner, the other reaching upward to aid the aspiring student towards the heights of learning. These are the tendencies which, when adequately realized, are to form the university of the new and better type.

In accordance with the action of the board in November last, the faculty sent out a circular to high schools in towns of less than five thousand inhabitants, informing them that on their request a committee of the faculty would visit them with a view to deciding whether their graduates would be admitted to the freshman class of the university without examination. A copy of the circular is appended to this report. Several schools were visited before the close of the college year, and the work has been begun for the present year. It was thought best by the faculty not to make any change at present in our relation to the high schools in towns of five thousand or more inhabitants.

Through the efforts of the head of the department of German and the liberality of citizens of the state, chiefly Germans, a considerable addition has been made to the German library. One hundred and sixty-nine books have already been received and orders for two hundred and fifty dollars worth more have been given. This movement meets an important want. May it be an incentive to others like it!

The exhibits of the university at the centennial exposition in Columbus and Cincinnati were prepared with intelligence and care, and have brought honor to the institution. The exhibit at the Ohio Centennial Exposition was awarded a silver medal, which, the commissioner of the educational building assures me, was the highest award from the committee in that department. Thanks are due to those members of the faculty whose time and labor were so freely given to render these displays successful. The report of the chairman of the committee is herewith submitted.

The Sunday afternoon lectures, of which I spoke in my last report, were continued with increasing interest through the winter. I trust that we shall be able to secure an equally successful course the present year.

I desire to express my gratification at the pleasant and cordial relations that have existed between the university and the agricultural experiment station. Their co-operation has been harmonious and I believe, that it will prove mutually advantageous.

The increase in the number of students, and especially the increase in certain departments, has made still more urgent the need of additional room. The chapel is overflowing. If the present rule of the board respecting attendance at chapel is to continue in force, more ample accommodations must soon be provided. The laboratory of agricultural chemistry lacks desks for several students. The pharmaceutical laboratory is in the same condition. The library has outgrown its present quarters, and the reading-room in connection with it cannot afford space for nearly all who would otherwise make use of it. The assistants in Latin and history and in German are obliged to occupy such recitation-rooms as they can find vacant at the time.

The geological museum presents very strong claims for a new building. I join with the professor of geology in urging those claims again upon your attention and that of the general assembly. If such provision should be made, the library could be accommodated for a few years either in the new building or in the room at present occupied by the museum.

While the battalion has been growing larger, the indoor space that can be assigned to it for drill in bad weather has been growing less. The room in which the greater part of the battalion was formerly drilled at such times, has of necessity been taken little by little for other uses. This restriction has been especially detrimental the present year, on account of the continuous rains; and as cold or stormy weather will probably prevent outdoor drill for most of the winter, the military department seems likely to achieve very unsatisfactory results. The remedy is a drill-hall, which presents itself as one of our most immediate wants.

It is desirable that the plan for the grounds which was prepared during the year should be adopted, with such modifications as may be thought best, and that the work of carrying it out should be commenced without delay.

In all my previous reports I have presented the importance of an ample and permanent increase of the income of the university; and I have suggested, as the best way for providing it, a fixed appropriation by the general assembly of one-twentieth of a mill on the tax duplicate of the state. May we not hope that the propitious time has now come, and that this year will see the university raised to its rightful position among the educational institutions of the land.

I submit herewith the reports of the heads of the various departments of the university, and also the reports of the librarian and the superintendent of the grounds. I respectfully commend to your attention the representations and requests contained in these reports. They set forth real wants, which I am sure you will be glad to supply as far as the resources at your command will permit.

Respectfully submitted.

W. H. SCOTT, *President.*

APPENDIX TO PRESIDENT'S REPORT.

I. CIRCULAR TO HIGH SCHOOLS.

Graduates of high schools in cities of the first and second classes have for several years been admitted to the Freshman class of the State University upon their diplomas, subject to conditions in branches not included in the courses pursued by them and required for admission to the university. As many young men and women have found it advantageous to avail themselves of this privilege, and as enquiries are frequently made in behalf of graduates of high schools not thus included, the faculty of the University, with the authority of the trustees, have adopted the following plan for extending to graduates of such schools the opportunity of entering the Freshman class of the University without examination.

Upon request or application from the authorities of any such school, a committee of the faculty will visit the school in question, confer with the instructors, examine the course of study, and see the school in operation. Upon a favorable report from the committee, the faculty will place the name of the school in question upon the list of those whose diploma will be accepted in place of examination, subject to the conditions above specified, as in case of schools now upon the list.

We trust that this plan will commend itself as advantageous both to your school and to your graduates, and that such of the members of your present or future senior classes as purpose entering college may be enabled to avail themselves, if they desire, of this mode of admission to the State University, which has been established for the benefit of the young men and women of Ohio.

Applications or enquiries for further information may be addressed to

WM. H. SCOTT,
President State University,
Columbus, Ohio.

May, 1888.

II. REPORT OF COMMITTEE ON CENTENNIAL EXHIBIT.

Ohio State University,
Columbus, Ohio, *November* 17, 1888.

To President W. H. Scott, *Ohio State University:*

Dear Sir: Your committee of the faculty having in charge the exhibit of the University at the Ohio and the Cincinnati Centennial Expositions would respectfully report as follows:

THE OHIO CENTENNIAL.

The committee secured of the commissioner of the educational department of the exhibition the allowance of 2,320 square feet of floor space and 3,304 square feet of wall space, in which to make the university exhibit, the same being in the north-east portion of the "North Annex." This space was allotted to the various departments to be represented, when the cost of the exhibiting was estimated to be $950.00. This sum was placed at the disposal of the committee by the trustees at their June meeting.

The location of the departments in the exhibit is shown in the following diagram:

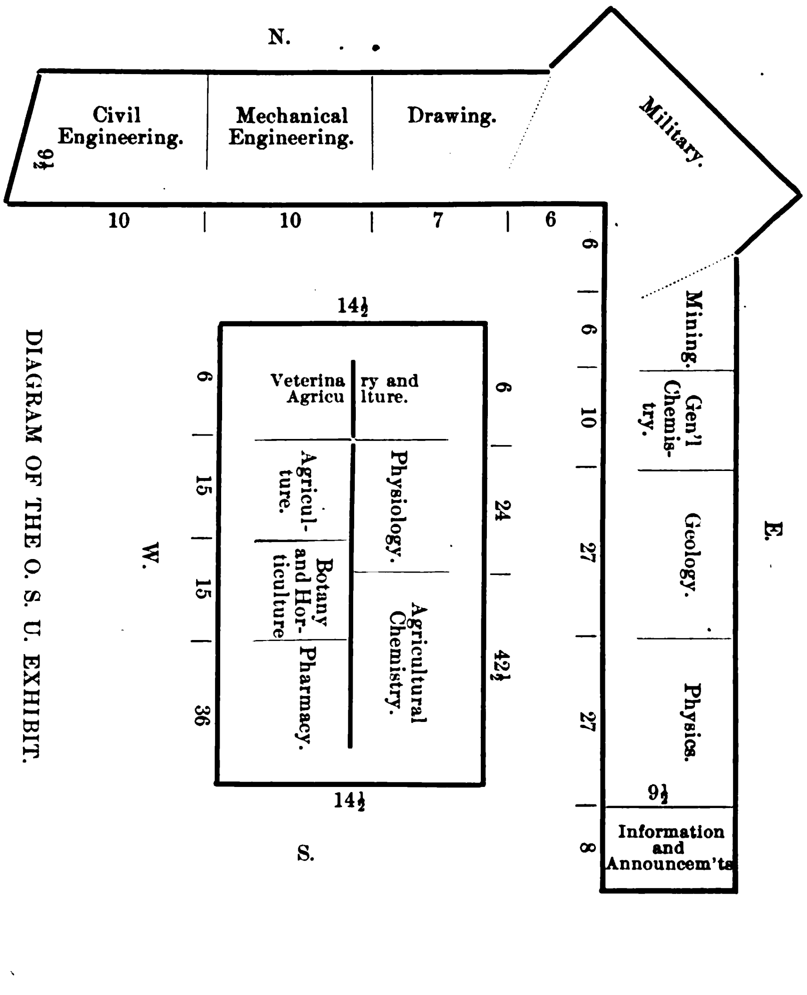


DIAGRAM OF THE O. S. U. EXHIBIT.

GENERAL STATEMENT RESPECTING DEPARTMENT EXHIBITS.

AGRICULTURE AND VETERINARY.

1. Auzoux model of horse, life-size.
2. Perfect mounted skeleton of horse.
   " " " cow.
   " " " sheep.
   " " " hog.
3. Specimens of wheats in 150 named varieties in full-length straw.
   " corn in variety.
   " oats in 50 varieties in full-length straw.
   " barley in variety.
   " beans "
   " peas "
   Samples of wood
4. Colored plates illustrating breeds of—
   - Horses,
   - Cattle,
   - Sheep,
   - Hogs.
5. Photographs illustrating—
   - Hog Cholera,
   - Pleuro Pneumonia,
   - Tuberculosis,
   - Anthrox,
   - Parasites.
6. A representative collection of varieties of wool grown in Ohio.

AGRICULTURAL CHEMISTRY.

The display consisted of a series of exhibited analyses of the principal feeding stuffs, so arranged in bottles of suitable size as to show the amount of protein, fat, fiber, nitrogen, free extract and ash contained in—

1. Hay; as timothy, red top, blue grass, oat, barley, red clover, white clover, alsike clover, vetches, etc.
2. Straw; as wheat, rye, oats and barley.
3. Roots; as sugar beets, mangolds, carrots, potatoes, etc.
4. Leaves; as beets, carrots, etc.
5. Grain; as corn, oats, wheat, rye, barley, etc.
6. Manufactured products; as bran, cotton seed meal, linseed meal, hominy meal etc.
7. Varieties of beans and peas.
8. A chemical balance and sets of apparatus for students, as well as for the analysis of butter, milk, fertilizers, water, etc., were also shown.

BOTANY AND HORTICULTURE.

1. A large collection of mounted herbarium specimens representing the flora of the state and illustrating the manner in which the work is done at the University. Samples of mounting paper, gescus covers, herbarium labels, etc., were exhibited.

2. A representative collection of the native woods of Ohio, illustrating their comparative value.

A portion of this consisted for the most part of specimens six feet long, by one foot wide, and one inch thick, one side being planed and highly polished.

Another portion consisted of short sections of the stems or trunks of our native trees.

3. A classified collection of vegetable products, including foods, medicines, condiments, coloring substances, etc., illustrating economic, or applied botany.

4. Appliances for studying physiological botany, or vegetable physiology, including a dissecting microscope, a student's compound microscope, mounted section of vegetable tissue, staining fluids, etc.

5. A collection of casts of our standard varieties of apples and other fruits.

6. Specimens of perishable fruits grown upon the university farm, preserved in alcohol.

7. Various specimens showing the correct form of pruning and training of our small fruit plants, also representations of wild, untrainded species of the same.

GENERAL CHEMISTRY.

A working outfit of appliances for one student in chemical analysis, both qualitative and quantitative.

CIVIL ENGINEERING.

1. A collection of engineers' field instruments, including the theodolite, level, transit, solar compass, plane-table, measuring chains and tapes, target rods, etc.

2. A collection of engineering drawings by students, photographs of bridges and engineering structures, in frames.

3. A calculation cylinder.

4. Models of masonary work and framing.

DRAWING.

1. A collection of *Schroeder's models*, illustrating descriptive geometry.

2. Models of various geometric forms.

3. An improved drawing table, drawing board, accompanied by a set of drawing instruments complete.

4. A collection of plates of students' drawings in frames.

GEOLOGY

Included a display of—

1. The characteristic rocks and minerals of Ohio.

2. The geological column of the various rocks and strata underlying the state of Ohio.

3. A large geological map of Ohio.

4. Two slabs of coal measure plants, in frames.

5. A full section of the Pomeroy coal.

6. The several iron ores of importance, the building stones, limes, salt, and bromine of the state.

7. Two cases of our choice crystals, and mineral specimens.

MECHANICAL ENGINEERING.

In this portion of the exhibit were shown—

1. Thirty models of mechanical movements.
2. A case of standards, and a Pratt & Whitney measuring machine.
3. A set of practice pieces of the laboratory class work.
4. Framed plates, showing an illustrated program of the laboratory work.
5. A set of babbetted boxes used in lubricant testing.

MINING ENGINEERING.

This exhibit comprised a collection of—

1. Drawings of furnaces, maps of mines and mining machinery, made by students, of actual works, or from designs of their own.
2. Complete collection of the ores of all the common metals.
3. A collection of appratus used in assaying ores of gold, silver, iron, copper, and for testing steel and iron.
4. A collection of photographs of the interior of Ohio coal mines, showing points of interest, and of mining machines at work, etc., made by the department.

MILITARY.

This display comprised—

1. Several stands of arms.
2. One 3-inch rifle cannon.
3. United States signal equipments.
4. National and battalion colors.
5. Prize streamers.
6. Photographs of representative companies of O. S. U. battalion which won prizes at Findlay and Wooster, and of the prize company of 1888.
7. Copies of commissions and warrants as issued to officers and non-commissioned officers of O. S. U. battlion.

PHARMACY.

This exhibit embraced—

1. A complete line of officinate and unofficinate extracts.
2. A partial line of elixirs and syrups, in such shape as to display their excellence.
3. Quite a large assortment of rare and curious drugs, arranged in front so as to admit of their examination by the public, and they proved of general interest.
4. Recent improved apparatus, including balances, distilling apparatus, filtering apparatus, etc.
5. Glassware made in 1825, shown in comparison with that made at the present day, with a view to indicating the improvement in style made in this period.

PHYSICS.

This display embraced instruments of precision and of demonstration, covering the whole range of physics, viz.: Mechanics, heat, sound, light, electricity and magnetism. Among the instruments represented were -

1. The cathetometer of the *Sociéti Génevoise.*
2. Sets of Thomson's galvanometers and electroscopes.
3. Resistance boxes, bridges and standards from Elliott Bros., Latimer Clark, Muirhead & Co., James White, Edellman and others.
4. Acoustic apparatus from Koenig.

5. Optical apparatus, including spectroscopes,, etc. from Browning, and apparatus for projections, and for polarzied light from J. Du Boscq. Rowland's gratings and spectrum photographs.
6. Collection of standard and working thermometers.
7. Set of standard weights and measures from U. S. Coast Survey office, etc.

PHYSIOLOGY AND ANATOMY.

This exhibit included:

1. Models and skeletons for illustration in anatomy and physiology.
2. Museum specimens of general interest.
3. A set of apparatus for histological work, including microscopes and microtomes of different patterns.
4. Fixing, staining and mounting reagents and microscopic preparations.

The university exhibit appears to have produced a decided and favorable impression, judging from the general interest taken in it by visitors at the exhibition, complimentary expressions to different members of the faculty from persons of standing and influence, and from the verbal statement of high appreciation and of thanks on the part of Commissioner Thompson of the department of education.

The expenses incurred in getting the exhibit in commendable shape were greater than anticipated by the committee, the consequence of which was a diminution of the force of attendants. As it was, the number of attendants averaged about four throughout.

A few instances of slight damage have been mentioned, but nothing serious of this kind has occurred to the knowledge of the committee.

After providing for the expenses of every kind connected with the exhibit, there remains from the $950, granted for the exhibit, a balance of about $25, and the individual items of expense may be learned at the office of the secretary of the board of trustees.

THE CINCINNATI EXHIBIT.

The result of a conference between your committee and one of the commissioners of the Cincinnati Centennial Exhibition was, that $500 be allowed by the Cincinnati commission to provide for expenses in making an exhibit of two departments of the university, viz.: Physics, botany and horticulture.

This exhibit was accompanied by one attendant, the $500 above named covering the expenses of the exhibit and exhibitor.

Very respectfully,

S. W. ROBINSON,
For the Committee.

Professors B. F. THOMAS, }
" H. A. WEBER, } *Committee.*
" W. R. LAZENBY, }
" S. W. ROBINSON, }

Department Reports.

AGRICULTURE.

President W. H. Scott:

DEAR SIR: The annual report of the condition of the department of Agriculture in the Ohio State University is herewith respectfully submitted:

The number of students in this department for the past year was twenty-nine. Of these, eighteen were classed as agricultural, and eleven as veterinary. The number enrolled in my classes for the present term is thirty-six. Of these, seventeen are agricultural and nineteen veterinary. In regard to students here classed as veterinary, it should be understood that a majority do not expect to adopt veterinary medicine as a profession, but desire to obtain such knowledge of the nature, causes and symptoms of the diseases to which domestic animals are subject, as will prepare them for the more successful management of stock.

The establishment by the university of a short, or two years' course of study in agriculture, which might be chosen by those who for any reason could not complete the regular college course, has proved to be eminently advantageous. A large majority of the agricultural students avail themselves of the short course.

The offer of a free scholarship in the short agricultural course made by the university to one student from every county agricultural society in the state during the centennial year, appears not to have been generally understood, or not sufficiently known. Last year only five of the county societies sent a student, and the present year, including the above, there are only fifteen students who have come to the university with certificates of appointment from county agricultural societies.

The Ohio Experiment Station, located upon the farm of the university, affords excellent opportunity for the practical illustration of what is taught in the agricultural class-room. It also enables many students to defray a part of their expenses by giving compensation for work the students are able to perform.

The weekly meetings of the Kirtland Natural History Society are well sustained. This society gives to agricultural and veterinary students an opportunity for literary and forensic training.

Respectfully,

N. S. TOWNSHEND,
Professor of Agriculture.

Ohio State University October 20, 1888.

AGRICULTURAL CHEMISTRY.

President W. H. Scott:

SIR: The undersigned respectfully submits the following report of the department of Agricultural Chemistry, for the year ending June 22, 1888:

During the year the number of students enrolled in the classes was as follows:

First year—	
Fall term	18
Winter term	10
Spring term	9
Second year—	
Fall term	3
Winter term	3
Spring term	2

The enrollment for the present term is as follows:

First year	25
Second year	6

As you are aware, the laboratory of agricultural chemistry can at present accommodate only 24 students. Some temporary arrangements must be made for six or seven students during this term. Six permanent desks for students could still be added to our present laboratory room, without seriously overcrowding it. The expense for the same, including equipment, would be $600.00. In view of the fact, that our desk-room falls short of the present number of students, the undersigned respectfully requests that you bring the matter to the attention of the honorable board of trustees, and solicit them to secure an appropriation for this much-needed improvement.

Very respectfully,

H. A. WEBER,
Professor of Agricultural Chemistry.

Ohio State University, October, 1888.

BOTANY AND HORTICULTURE.

President W. H. Scott:

DEAR SIR: I have the honor to submit herewith the annual report of the department of botany and horticulture for the year ending June 20, 1888.

The total number of students receiving instruction in this department during the year was 124.

The following tabulated statement presents the subject taught and the number enrolled in each class:

Fall Term.

Advanced structural botany	28
Economic and applied botany	12
Fruit culture (large fruit)	8
Special botany	2—50

Winter Term.

Cryptogamic botany	28
Vegetable, physiology and histology	3
Special botany	1—32

Spring Term.

Structural and systematic botany	76
Advanced botany	23
Fruit culture (small fruit)	8
Vegetable gardening and seed-growing	8
Special botany	2—117
Total enrollment in all classes	199
Number of different students	124

The required work during the spring term is more than one instructor ought to undertake. It leaves little time for study and preparation which should be the equal duty and privilege of a university professor. Defective instruction is inseparable from large classes. It is impossible to give that personal attention to each student that is necessary to ascertain his real acquirements and to meet his individual needs. It likewise effectually prevents any systematic work in the way of enlarging and improving the museum collections, and thus rendering them more available for the use of students.

Mr. Moses Craig, a member of the present senior class, who has made a special study of botany, has rendered valuable assistance throughout the year.

I respectfully ask that he be appointed a regular assistant in this department for the coming spring term.

Means of Illustration.

Considerable progress has been made since my last report in the way of collecting and preparing illustrative material. A large part of the herbarium specimens have been mounted and are now in a convenient form for reference. This work has been done almost wholly by special students.

The museum is steadily enlarging and growing in value; the green-houses also have been helpful, furnishing indispensable material for the illustration of the different subjects presented in the lecture-room and studied in the laboratory. The green-houses have also offered instruction and pleasure to hundreds of visitors during the year. In addition to this, they have furnished a large collection of bedding and ornamental plants, which added much to the attractiveness of the university campus.

Expenditure of Appropriation.

A portion of the appropriation for the better equipment of the department has been expended in the construction and alteration of museum cases and in mounting specimens for a permanent herbarium.

A very complete collection of our hardy trees and shrubs for the purpose of illustrating economic botany and landscape gardening, exhibited at the Ohio Centennial Exposition, has been purchased from Thomas Meehan & Son, well known and reliable nurserymen of Germantown, Pennsylvania. The plants can be removed from their present situation from time to time as may be found convenient, and the transplanting carefully and systematically done, with slight additional expense. After careful examination, I am positive that a collection of trees and shrubs of equal value could not be got together for several times the price paid for this.

Successful Co-operation of the Department with the Experiment Station.

The new arrangement, whereby the fruit and vegetable gardens have been placed under the control of the experiment station, has proven a signal success as far as means of training for students is concerned. Every opportunity has been given for practical instruction in fruit culture, vegetable gardening, seed-growing, etc. Under my direction, all the students in horticulture have conducted some simple experiments and have taken repeated lessons in transplanting, pruning, grafting, picking fruit, and many other horticultural operations; every possible facility for this work has been cheerfully granted by the station officers, and Mr. W. J. Green, the horticulturist, has rendered much valuable assistance in the way of counsel, and freely offered practical instruction.

Needs of the Department.

The following is a summary of the needs of the department in addition to those already enumerated:

For museum	$300
Plants for green-houses	100
Models, maps and charts for class-room	100
Total	$500

If I have become wearisome in urging the needs of the department, it is only because I wish to see the opportunities offered here to the average student of botany and horticulture as good as those at any other university in the country.

Very respectfully,

WILLIAM R. LAZENBY,
Professor of Botany and Horticulture.

Ohio State University, November 1, 1888.

GENERAL CHEMISTRY.

President William H. Scott:

DEAR SIR: I have the honor to present herewith my sixteenth annual report for the department of general and applied chemistry.

The total number of students enrolled in my classes during the last academic year was 112. Of these, sixteen were in the analytical laboratories, ninety-seven in the class studying inorganic chemistry, and forty-four in that of organic chemistry. Besides these Mr. Keffer had a class of — in stoichiometry throughout the year.

The work done during the year was of the same general character as is usual with my classes, but was on the whole less satisfactory to me. Not enough time is allowed for instruction in general chemistry to attain the results which should be expected of us, and I renew the protest that I made when the time allotted to the class in experimental chemistry was shortened.

There were no considerable additions made to our library or to our collections. We are still in great need of books, and the statements made in my last report are applicable to our present wants in this particular. Our little library is in constant use, and is of great service to our students; but it is lacking in many respects, as I have often pointed out.

I hope that funds may be had to enable me to buy some of the newer forms of apparatus, devised for class illustration of chemical principles, used in experiments. The fund given me at the close of the year will barely suffice for the ordinary wants of the year.

Mr. Frederic Keffer has been energetic and diligent in his work as assistant. No class was formed, the last year, in toxicology, as there were no third-year students in pharmacy. It is probable that this will never occur again. Mr. Keffer had full charge of the display of the department at the centennial exhibition, and to him must be given the credit.

Very respectfully yours,

SIDNEY A. NORTON,
Professor of General and Applied Chemistry.

Ohio State University, October, 1888.

CIVIL ENGINEERING.

President W. H. Scott:

DEAR SIR: I herewith submit the following report of the department of civil engineering for the college year ending June 20, 1888.

The number of students enrolled in the department was as follows:

Fall term—Land surveying, 12; topographical surveying, 8; bridge designing, 5' civil engineering, 6.

Winter term—Field measurements, 7; lettering, 13; stereotomy, 4; civil engineering, 5; plans and specifications, 4.

Spring term—Railroad surveying, 11; lettering, 1; bridge strains, 4; sanitary engineering, 5; plans and specifications, 4.

The number of different students in the department during the year was thirty-eight.

There were four graduates in civil engineering.

During the winter the surveying class made a topographical survey of the campus and a portion of the farm for the use of the board of trustees.

Many of the students secured positions on surveying corps for the summer, and all are urged and aided to do so when possible.

The equipment of the department has been increased by the addition of a set of models of timber connections, a Thacker calculating machine, a magic lantern, fifteen drawing tables, and several small instruments for use in the field and office.

The new drawing tables were badly needed, and have proved to be well adapted to our work.

I regret very much that the appropriation for the department for this year is so small, and hope that the next one may be larger.

Very respectfully submitted.

C. N. BROWN,
Associate Professor of Civil Engineering.

Ohio State University, October 27, 1888.

DRAWING.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report of the department of drawing for the year ending June 20, 1888.

The number of students enrolled was 157, distributed as follows:

Fall Term—Freehand drawing	12	
Projection "	40	
Special "	4	
	——	56
Winter Term—Freehand drawing	16	
Descriptive geometry	38	
Special drawing	3	
	——	57
Spring Term—Freehand drawing	10	
Shades, shadows and perspective	32	
Special drawing	2	
	——	44
		157

Deducting students twice counted the number was 151.

The increased number of students in projection drawing, descriptive geometry, and shades, shadows and perspective was the result of a change which transferred the studies mentioned from the Sophomore to the Freshman year of the engineering courses. This change caused a doubling up of the two classes.

During the year the following valuable additions to the equipment of the department were made: Twenty drawing-tables, for the use of the students in mechanical drawing, which have given complete satisfaction; a set of the celebrated Schröder descriptive geometry models; and a few excellent models for the students in freehand drawing. The addition of the set of models has resulted in increased interest in the subjects of projection drawing and descriptive geometry. A clearer conception of the subjects results from having the object and its representation so closely associated. To protect this valuable set of models properly, a case has been provided, having glass doors on both sides, which give a clear view, so that the students can consult them at all times. We did not obtain as many studies in freehand drawing as was desired, owing to the fact that the Schröder models cost more than was expected, leaving a smaller amount of the appropriation to be expended for this need.

The windows of the room have been fitted with the proper shades, giving control over the quantity and direction of light, which is a most important factor in all drawing from plaster casts.

Before closing this report, I would ask the privilege of offering a suggestion as to the advisability of taking steps towards establishing a course in architecture. A number of letters have been received from young men, in reference to instruction in architecture, which indicates that the university could supply a want in this field. To establish such a course, would not necessitate a great outlay, as no new buildings would be required, and many studies now taught would be found necessary to the course proposed. Advantages are given to young men of other callings in life; why not give those which will enable others to build wisely?

Very respectfully yours,

Jos. N. Bradford.

Ohio State University, October, 1888.

ENGLISH LANGUAGE AND LITERATURE.

President W. H. Scott:

SIR: On the work of instruction assigned to me for the year ending June 20, 1888, I have the honor to report as follows:

	Fall.	Winter.	Spring.
First Preparatory, English	30	26	....
English A (Rhetoric, Freshman)	67	46	35
English B (Anglo-Saxon and English Literature, Sophomore)	32	33	31
English C (Masterpiece Course, Junior)	14	13	13
Rhetoricals (Sophomore and Junior)	56	57	55
Totals	199	175	134
Number of different students	163	144	96

In the preparatory work, generally, students are trained to take the language to pieces, to learn its construction, to know its formation, to invent and classify topics, to apply the leading principles of expression to letter-writing and the treatment of subjects assigned for investigation and discussion. The recent re-introduction of composition into the second preparatory year, cannot fail to yield a much better equipment for the study of rhetoric proper.

In rhetoric, or Freshman English, the aim has been to communicate by copious illustrations from the standard writers, and by a due amount of exercise in criticism and invention, those elements of knowledge and power which may be applied, as the result of the teacher's guidance, to the actual construction of literature.

Two conceptions, I may add, underlie the instruction in the linguistic branch of the department—that the true object of the teacher is to excite, maintain, and direct the intellectual energies of students, to train them to think; and that the right office of language is as a medium of intercourse with things.

A rounding out of the linguistic and constructive work thus begun comes with a study of the great models of literary excellence. Our course in literature virtually begins in the Freshman year, with the memorizing of choice quotations, the consideration of subjects vitally related to literary art, as taste, imagination, the sublime, the beautiful, and the historical survey of the chief departments of literature, as the essay, history, the novel, oratory, and poetry. In the Sophomore year, it is devoted (1) partly to the forms and principles of Anglo-Saxon, with special reference to the successive stages of its development into present-day English, but (2) mainly to a cursory view of English literary history, regarded as an organic whole. In the Junior year, it takes the form of thorough study of the great masterpieces that inspire, guide, train human passion, and kindle and sustain lofty sentiment; as the Faerie Queene, Merchant of Venice, Essay on Man, Intimations of Immortality, Sartor Resartus, Nature, etc. By 'thorough study' is not meant dwelling assiduously on the husks of genealogy, grammar, and philology, but seizing, pondering, and holding fast whatsoever is noble or precious or life-giving in the work in hand, and seeing

> How parts relate to parts, or they to whole,
> The body's harmony, the beaming soul.

It seems greatly to be desired that the English course should be extended, electively at least, to embrace in the senior year some of the world's authors, as Plato, Aurelius, Dante, Goethe, etc. 'To create and maintain in every student the highest ideal of human life is, or ought to be, the chief work of any college. There is no study like that of the best literature to form and glorify such an ideal.'

As appears more fully in the descriptive statement of the catalogue, essay-work—the systematic investigation of subjects, the finding of something to say and proficiency in saying it—is made prominent throughout the course. The results, I am very free to note, have been highly and increasingly gratifying.

Very respectfully,

ALFRED H. WELSH,

Associate Professor of English Language and Literature.

Ohio State University, October, 1888.

FRENCH LANGUAGE AND LITERATURE.

President W. H. Scott:

SIR: I have the honor to submit the annual report of the department of French for the year ending June 20, 1888:

The enrollment for the year was as follows:

Sophomore French, B. Ph. section—1st term	9
" " " —2d "	10
" " " —3d "	10
Sophomore French, B. Sc. section—1st term	17
" " " —2d "	16
" " " —3d "	15
Freshman French—1st term	36
" —2d "	30
" —3d "	26

In the B. Ph. section, of the Sophomore year, the work, for the first term, consisted in the study of the classics and of composition. The second term, the critical reading of the French of the classical period was continued, and the study of the literature was begun. Lectures in French on the literature were given, the student using as a text-book L'Histoire de la Littérature, par Demogeot.

The third term, the time was partly devoted to the reading of modern French prose, and the lectures on the literature were continued. The students were required to take notes of the lectures in French, and to submit, at the close of the course, their note-books for examination. The result, with but one or two exceptions, was satisfactory.

The course pursued in the B. Sc. section of the Sophomore year, was the reading of scientific French and modern prose, with the study of composition and lectures in English on French literature. The Freshman class followed mainly the course of the past year: studying the construction of the language the first term, and the second and third terms applying the principles thus learned in composition and in reading the language. The Freshman class continues the use of a grammar in the French itself, and the student is required to write his examination papers in French. In this way he begins at once to acquire a theoretical and practical knowledge of the language.

The department takes advantage of this opportunity to express its thanks for the means given it to add to its library, and to make the request that a larger appropriation be granted to purchase books of reference as well as to add to the works of general literature.

Respectfully submitted.

A. K. WILLIAMS,
Associate Professor of French Language and Literature.

Ohio State University, October, 1888.

GEOLOGY.

President W. H. Scott:

DEAR SIR: I herewith present my report of the department of geology for the last academic year:

The number of students enrolled in the several classes of the department during the year was 83. These students were distributed among the classes as follows:

General geology, senior and junior class, 2 terms	18
Economic geology, junior class, 1 term	5
Physical geography, 1st preparatory class, section A, 1 term	26
" " " " " B, 1 term	34
Total	83

Deducting students counted twice in this enumeration, the total number pursuing studies in my department was 78.

The reasons for desiring a safer and more suitable place for the geological museum than that now occupied, have been quite fully set forth in my reports for the last three or four years and it is scarcely necessary to repeat them here. It is sufficient to say that these reasons remain in full force, and that all the interests of the department would be advanced by the assignment of suitable quarters to our geological collections. I am persuaded that the trustees see the desirability of such provision and would gladly aid in making it if it were in their power. I trust that the wants of this department will not be lost sight of in any additions that are to be made to the buildings now on the university grounds.

The appropriation for the care of the museum, which was made at my request last year, proved serviceable, and I am grateful for the assignment of a like amount for the current year. A part of it will be required in restoring the collection to the condition it was in before being exposed on the centennial grounds this summer. In regard to the exposition here referred to the duty and policy of the institution were plain, but I trust that we shall not again be called upon to undertake such displays outside of our own proper quarters.

Very respectfully,

EDWARD ORTON,
Professor of Geology.

Ohio State University, October 31, 1888.

GERMAN LANGUAGE AND LITERATURE.

President W. H. Scott:

SIR: I have the honor of submitting the report of the department of German Language and Literature for the academic year ending June 20, 1888.

The following was the total enrollment for the year:

First preparatory	78	Two sections.
Second preparatory	24	
Class in German literature	9	
Total	111	

This enrollment shows a very considerable increase in the number of students in the department. The increase was largely due to greater facilities for the election of German, of which a gratifying number of college men availed themselves. German has been made elective in the sophomore year of the arts and philosophy courses, so that any student in these courses can now take three years in German. The opportunities for studying German in the science course have also been extended. Students admitted to this course on Latin as their preparatory language, will take German as a five- hour study throughout the freshman and sophomore years; and the privilege of election will permit all Latin students to continue German through the junior and senior years.

I took occasion in my last report to point out the incongruity of teaching preparatory pupils and college men in the same class. It gives me great pleasure to say that this incongruity has been removed, separate classes having been formed, with different text-books and different methods of instruction. This separation, as well as a very decided increase in the size of the classes, which is to be noted again this year, has added very largely to the work, making it impossible for me to carry on and to extend the work as it ought to be done, without assistance. The size of the classes is such that the utmost efficiency can only be secured by still further subdivision. The dropping out of many of the younger pupils in the first year must be attributed to the lack of such subdivision and the consequent lack of personal attention to individual members of the classes. This explains the striking discrepancy between the enrollment of the first and the second preparatory classes. The great increase of work will render it necessary before long to add to the teaching force of the department.

I took occasion in my last report to refer also to the utter lack of books of reference and of material with which to carry on the higher work in German language and literature. It gives me great pleasure to state that this lack is about to be supplied. The Ohio State University German Library Association, an organization which was formed in this city for the purpose of supplying the university with a good German library, sent an order last June for a large number of books, which will be placed at the disposal of the department; and this number will be increased very considerably in the course of the present year. The readiness with which contributions of books and money were made for the above purpose, was very gratifying.

I can not close my report without acknowledging with profound gratitude the earnest efforts made by the German press of the state, as well as by many individuals, to further the work of gathering a large working library for the German department of the university.

Respectfully,

ERNST A. EGGERS,
Associate Professor of the German Language and Literature.

Ohio State University, October, 1888.

GREEK LANGUAGE AND LITERATURE.

President W. H. Scott:

DEAR SIR: I have the honor to submit my annual report of the work done in the department of Greek for the college year ending June 20, 1888.

The membership of the college classes in Greek during the year was divided as follows:

Senior elective (Ancient Art)	8
Senior	5
Junior	3
Sophomore	11
Freshman	14
Total	41

It will be seen by comparison with previous reports that the number of Freshmen electing Greek is steadily increasing from year to year, and I may add that an increasing proportion of those who enter remain throughout the four years and take the degree in arts.

I am glad to report that in attendance and scholarship the results of the year's work are very gratifying.

To satisfy, in some degree, what seemed to be a want, a course of lectures on the history of ancient art was added as an elective (two hours a week throughout the year) in the senior year of the course in arts. The course was elected by the entire senior class in arts, three others being allowed to attend as visitors. In spite of the meagre supply of illustrative material, the lectures were attentively listened to, and the experiment may be pronounced at least a partial success. I may here gratefully acknowledge the generosity of the late Mrs. H. E. Ide, of Columbus, who very kindly placed at my temporary disposal her excellent collection of photographs of Oriental and Greek architecture, together with the use of a megalethoscope.

A portion of the fund assigned to the purchase of "illustrative apparatus" in the departments of Latin and Greek has been expended in mounting and framing a number of photographs brought by me from Europe, illustrating ancient sculpture and architecture. These now add interest to our work and attractiveness to our class-rooms, and may be regarded, I trust, as the modest nucleus of that "classical museum," whose foundation was suggested by my colleague, Professor Derby, in his report of last year.

Very respectfully,

J. R. SMITH,
Professor of the Greek Language and Literature.

Ohio State University, October 1, 1888.

HISTORY AND POLITICAL SCIENCE.

President William H. Scott:

SIR: I have the honor to submit the following report of the department of history and political science for the year ending June 20, 1888.

The enrollment in the various classes in the department was as follows:

	1ST TERM.	2D TERM.	3D TERM.
HISTORY—			
History A (European)	24	24	22
History C (advanced investigation)	4	3	3
United States, Constitutional	15	13	12
Preparatory—United States (Sec. A)	32	....	....
" " (Sec. B)	....	....	20
" General History (Sec. A)	....	32	....
" " (Sec. B)	....	....	26
Totals in history	75	72	83
POLITICAL ECONOMY	23	23	22
Totals in department	98	95	105

Counting the students in each class but once for the year (and not by terms), the total enrollment was 182. As intimated in my last report the above enrollment is the first true numerical test of the efficiency of the department under the present system of elective work. A comparison with the enrollment during 1885–6 (the last year of the old courses of study), shows that the number of students in the department has increased from 122 to 182.

The section of the class in preparatory general history during the spring term recited to Associate Professor Welsh, and the other classes were conducted by myself. The amount and quality of the work done by the students during the year in all of the classes was, as a whole, gratifying.

After three years of trial and observation it became evident that the time allotted to the study of general history in the preparatory department was altogther inadequate for the attainment of results satisfactory to either instructor or pupil. As it was impossible that more time should be assigned to the study, and feeling also that it was a part of the duty of a state university, hitherto much neglected by us, to afford elementary instruction in the nature of our government and the duties of citizenship, the faculty, at my request in June last, substituted for general history the study of American civil government, so that hereafter every pupil in the preparatory department will receive elementary instruction for one term in things that make for good citizenship. In this connection permit me to express the hope that at no distant day provision may be made for a series of from six to twelve general lectures upon citizenship and government, to be annually or biennially delivered before the whole body of students in the university.

The appointment of an additional assistant last June, one-third of whose time is given to this department, has relieved me of some of the work in the preparatory school and has made it possible to offer to seniors and juniors a new elective in the study of two important branches of political science—international law and municipal administration.

Very respectfully,

GEO. W. KNIGHT,

Professor of History and Political Science.

Ohio State University, October 1, 1888.

LATIN LANGUAGE AND LITERATURE.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following report of the department of Latin for the last academic year.

The students enrolled during the year were classified as:

First preparatory, thirty;

Second preparatory, twenty-seven;

Freshman, twenty-nine;

Sophomore, sixteen;

Junior, twelve.

Total enrollment, one hundred and fourteen.

The number of students who enter this department is undoubtedly still diminished by the recent increase of requirements for admission to it. This effect of raising the standard at the beginning of the preparatory course, it may be presumed, is only temporary, but it seems unlikely that in the future as large a proportion of preparatory students will be attracted to the study of Latin as when that language was accepted as an equivalent for German as the language study in the preliminary work of the courses in science and engineering.

The work of instruction was divided as during the preceding year. Assistant professor McCoard took charge of the first preparatory class, the others were retained by myself; in all classes the attendance and the quality of the work done were good.

The timely appropriation made by the board of trustees in aid of this department has enabled me to supply, in some measure, that deficiency in the material equipment to which attention was called in my last annual report. Additional maps, plans, etc., have been ordered, and will probably be received in season to be of service the current year.

The illustrative apparatus already procured has helped the classical students to gain a more correct and vivid impression of ancient life and of the material side of Roman civilization.

Respectfully submitted.

S. C. DERBY,
Professor of the Latin Language and Literature.

Ohio State University, October, 1888.

MATHEMATICS AND ASTRONOMY.

President W. H. Scott:

DEAR SIR: I present herewith my report in the department of Mathematics and Astronomy for the session ending June, 1888.

The work has been carried on by Professor Charles E. Kilbourne, assistant Professor George W. McCoard and myself. The following summary shows the classes taught and the number of students enrolled:

Fall Term.

First preparatory—Algebra, Kilbourne, section A	30
" " " " " B	34
Second " Geometry, McCoard, " A	27
" " " " " B	36
Freshman—Advanced Trigonometry, Bohannan, section A	22
" " " " " B	32
Sophomore—Analytical Geometry and Calculus, Bohannan	18
Junior—Least Squares and Mathematical Astronomy "	7
Junior Elective—Potential Function, Bohannan	4
Total, fall term, 1887–88	210
" 1886–87	188

Winter Term.

First preparatory—Algebra, Kilbourne, section A	29
" " " " " B	21
Second " Geometry, McCoard, " A	20
" " " " " B	23
Freshman—Higher algebra, Bohannan, " A	18
" " " " " B	38
Sophomore—Analytical Geometry and Calculus, Bohannan	17
Junior—Geodesy	4
Junior Elective—Mathematical Electricity, Bohannan	5
Total, fall term, 1887–88	175
" 1886–87	180

Spring Term.

Second preparatory—Trigonometry for beginners, Kilbourne, section B	24
" " " " McCoard, " A	32
Freshman—Analytical Geometry " " " A	23
" " " " " " B	28
Sophomore " " and Calculus, Bohannan	17
Junior—Mathematical Astronomy, Bohannan	7
Senior—Astronomy, (non-mathematical,) Bohannan	9
Junior Elective—Mathematical Electricity, "	4
Total, spring term, 1887–88	144
" 1886–87	114
Total enrollments, 1887–88	529
" 1886–87	482
Total number of students, (none counted twice,) 1887–88	217
" " " 1886–87	196

Some of the sections in the lower classes have been too large. Untrained men can not be taught mathematics by lectures. They need the close personal attention of the instructor. I shall be glad if we can limit our sections to about twenty members. The trustees have kindly allowed Mr. McCoard to give up his classes in Latin, to devote all his time to instruction in mathematics. This will enable me to make smaller sections of the preparatory classes. I shall also transfer to Mr. McCoard one section of the Freshman class; the time thus saved I shall give to a new class in advanced work. Last year the elective work for Juniors was the study of the potential function; it continued only during the winter term. This year I took up the same subject during the fall term. During the winter and spring terms I formed, in answer to a strong demand, a class in mathematical electricity, doing, I believe, more advanced work in mathematics than has been attempted heretofore in this university I shall offer from now on at least two courses in each term in higher mathematics. In this, I believe, I shall advance the best interests of the university. Only men of some ability take these courses. By their presence and labors they are a constant source of inspiration to the lower-classmen; they honor us by their attainments when they have left us.

I am sorry to report that our apparatus and equipments for a course in practical astronomy are hardly worth mentioning. We have no observatory. Our telescope, though equatorially mounted, has no graduated circles, and admits of no adjustments. While suited to the needs of one class in descriptive astronomy, for practical work it is worthless. We have a transit, pocket edition, of about the same character, and a sextant whose graduated arm is too short to measure the altitude of the sun during that part of the year when our class is at work. I would, therefore, respectfully invite the attention of the trustees to the needs of this department. We ought to have a small observatory and some good apparatus. About $8,000 would satisfy our more pressing wants.

I am, sir, with great respect, your obedient servant,

R. D. BOHANNAN,
Professor of Mathematics and Astronomy.

MECHANICAL ENGINEERING.

President W. H. Scott:

DEAR SIR: I respectfully present the following report for the department of Mechanical Engineering, for the year ending June 20, 1888:

First Term—Students in analytical mechanics, 10; mechanism, 3; thermodynamics, 6; mechanical laboratory, 14; total, 33.

Second Term—Students in mechanism, 4; prime movers, 6; technical drawing, 4; mechanical laboratory, 19; total, 33.

Third Term—Students in machinery and mill-work, 6; technical drawing, 5; design drawing, 5; mechanism, 4; strength of materials, 11; mechanical laboratory, 12; total, 43.

I would call attention to the fact that many subjects of this department, for most efficient instruction, require means of practical illustration and experimentation, and I would reiterate the need of a new testing machine mentioned in my report a year ago. A testing machine is needed that will take in larger test pieces. This testing is important in the study of the strength of materials, which study is required in the civil as well as mechanical engineering.

More appliances are needed, and more help to carry on the instruction. Such instruction is necessarily largely individual, because of the expense of providing tools sufficient in number for all kinds of work and for a full class in each kind. Besides this, the class-room work in the higher subjects of the course has so increased that my own time, I judge, should partly be taken from the practice-classes and applied in the other subjects.

All these wants could be met, besides making an important addition to the university, by establishing a manual training school here, which should be suitably equipped with appliances and instructors. It is my belief that the best interests of the university now demand the step to be taken of instituting a manual training school, which shall be in accord with the views and plan set forth in my communication of last June.

To carry on a manual training school with advantage I would be glad that the services of some one be secured to take immediate charge, leaving me to be mainly occupied in the care for the higher work of the department and that part of the laboratory work which is especially concerned in mechanical engineering.

I judge that the manual training school buildings can, with best advantage, be put up in connection with the present mechanical building, the latter being utilized as far as it can serve.

Very respectfully, yours,

S. W. Robinson,
Professor of Mechanical Engineering.

Ohio State University, October 13, 1888.

MILITARY SCIENCE AND TACTICS.

President W. H. Scott:

Sir: I have the honor to submit the following report for the year ending June 20, 1888:

At the beginning of the college year a battalion of four companies of infantry and a band of sixteen pieces were organized. The total number of cadets required to drill was two hundred and thirty-four. Drills in the school of the soldier and company, and a few parades, reviews and inspections, occupied all the time until the weather became too severe for work out of doors. During the winter months drills were had in the basement of the main building in the mannal of arms. All commissioned officers of the battalion and all sophomores were required to recite twice each week in "Hamilton's Elementary Principles connected with the Art of War." The non-commissioned officers and freshmen had two recitations each week in infantry tactics, the captains being the instructors. A number of cadets joined the classes in tactics voluntarily. Cadet Lieut. Colonel H. Hagler was given supervision of the theoretical instruction in tactics, and Cadet Major W. S. Crawford of the practical instruction. In January a platoon of artillery was organized under the command of Cadet Captain T. L. Griffin, and drilled in standing-gun drill and platoon drill. In April it was found necessary to disband the artillery in order to maintain the four companies of infantry. A few battalion drills were had during the winter, but on account of bad weather it was found necessary to postpone instruction in this part of tactics until spring.

The battalion took part in the ceremonies attending the inauguration of Governor Foraker, January 9th, and won commendation for their soldierly bearing and appearance and their fine marching. The cadets conducted themselves in a way to reflect credit upon the university.

On the 25th of April commissions and warrants, the issue of which had been authorized by the board of trustees, were presented to the officers and non-commissioned officers. Through the kindness of Gen. H. A. Axline, adjutant-general of Ohio, a record of commissions issued will be kept in the adjutant-general's office. This adds greatly to their value, and may prove of advantage, both to the state and to the individual, should the services of competent men ever be required.

The annual prize drill took place May 19th. Capt. Hobart, Lieut. Lockwood and Lieut. Kinzie acted as judges. The first prize, the prize sword, was won by company "C," Capt. L. F. Kiesewetter commanding, and the second by company "D," Capt. J. E. Thompson commanding. The percentage of accuracy in drill of all companies was highly creditable to them. Gen. Axline and Prof. N. W. Lord presented the prizes to the winning companies. A commendable spirit prevailed in the battalion throughout the year, and the discipline and attention to duty of nearly all the cadets was excellent.

I respectfully renew my recommendation that overcoats be added to the uniform of the cadets. If this is done, drills can be held in the open air for at least a month later than without them, and also at intervals during the winter, and should the battalion be required to turn out, it could do so with comfort and without danger to the health of the cadets. I also renew my recommendation for a drill-hall and armory. A building of this kind is much needed. During the summer a large part of the space in the basement, formerly used for drill purposes, was partitioned off for machinery. The space under cover available for drill is entirely inadequate. The ventilation in the basement is very bad, and there is not room enough for more than one-half the battalion. Yet this is the only place available for drill. In the interest of the health of the students I hope some suitable drill-hall will be provided.

The total number of cadets for drill this term is two hundred and sixty-two, organized into a battalion of infantry of four companies, and a band of fifteen pieces. A platoon of artillery will be organized within the next week, and also a signal detachment for instruction in field signaling. In closing I desire to express my thanks to you and to the faculty for the cordial support I have received.

Very respectfully, your obedient servant,

CHAS. E. KILBOURNE,
First Lieutenant Second Artillery,
Professor of Military Science and Tactics.

MINING AND METALLURGY.

President W. H. Scott:

DEAR SIR: I respectfully submit the following report of the work done in the department of Mining and Metallurgy for the year ending June 20, 1888:

There were classes during the year in the following subjects: metallurgy, mining engineering, general mineralogy, determinative mineralogy, assaying and metallurgical laboratory practice. In addition to this the senior class were given the usual work in plans, specifications and thesis.

Owing to the number of students in general mineralogy it was necessary to divide the class into two sections, requiring thus an additional hour. The addition of metallurgical laboratory work was an experiment, but proved so successful that hereafter it will form a regular part of this course, supplementing the lectures on the subject by two terms' work in special analysis of iron, steel, ores, slags, gases, etc., in which the modern rapid methods of technical laboratories will be taught practically. In order to provide the time for this work it was necessary to shorten the lecture course from three terms to two.

The total number of students in the various classes during the year was eighty; but, allowing for those names which appear in more than one class, the actual number of students in the department was sixty-eight.

Of the senior class, graduated last June, four received the degree of mining engineer, having completed the work of the department.

During the year a short course in mining engineering was arranged and published. This provides for special instruction in mine surveying and development for young men engaged in Ohio mines. The character of this work will make it necessary to duplicate some of the classes, but through the recent appointment of Assistant Professor F. W. Sperr, it will be possible to do this.

During the spring term some increase of equipment was made, and we are now rapidly adding to the facilities of the department, especially in the direction of mining engineering. Among recent additions are complete sets of instruments for mine surveying and mapping, and maps and survey notes of some of the best developed Ohio and other mines. The metallurgical and assay laboratory has been provided with apparatus for gas analysis and other special work.

I wish to acknowledge here the obligation the department is under to the Ohio Institute of Mining Engineers for its cordial support and assistance in all efforts to increase the efficiency of the school, and in bringing it into contact with the mining industries of the state, and securing recognition from them. The office of the State Mine Inspector has also done much to assist in the development and extension of the department.

Very truly yours,

N. W. Lord,

Professor of Mining and Metallurgy.

Ohio State University, October, 1888.

PHARMACY.

President W. H. Scott:

Dear Sir: I herewith submit the report of the department of Pharmacy for the past year.

The work in this department has progressed as satisfactorily as could be expected when the facilities are considered. It has been observed that a number of our students have passed the examination before the State Board of Pharmacy before completing their course here, and that after having been successful before the board, they usually leave the school. It has also been noted that many students, when they enter the course, state plainly that their object is to meet the requirements of the State Board of Pharmacy. These facts have led the committee to consider the advisability of arranging the course with that object in view. The committee has also under consideration some radical changes in the course as now laid out, and also some changes in the requirements for admission, which in due time will be presented to the faculty.

These changes, if made, we have reason to believe will greatly increase the number of students. They must, however, be dependent on the nature and the extent of the facilities provided by the trustees. It is useless to take any step looking to an increase in the number of students when we cannot properly provide for those we have.

During the past year we were furnished quarters through the kindness of Professor Weber, whose lecture-room and laboratory we have used, and to whom we are indebted for many favors. It was apparent, however, that Prof. Weber's laboratory would not long accommodate both departments, and to relieve the pressing necessity, a laboratory was fitted up at the beginning of the present year in a room of the botanical building, which, it was hoped, would accommodate the department for the year. It now serves as both lecture-room and laboratory. The increase in the number of students has already taxed this new laboratory to its utmost capacity, and any further increase will be unprovided for. There can scarcely be a doubt that if proper facilities can be provided, and the changes made as above noted, this department will become a very popular one. Its success, under present difficulties, would indicate as much. I would, therefore, earnestly urge upon the board of trustees the consideration of its needs.

Some progress has been made in the collection of a cabinet of materia medica and galenical preparations, and in this we are indebted to the liberality of Messrs. Parke, Davis & Co., of Detroit, Powers & Weightman, of Philadelphia, and the Kauffman-Lattimer Co., of this city, all of whom have made liberal donations.

We have heretofore had the benefit of the cabinet belonging to the department of general chemistry, but our removal from the laboratory building has deprived us of that advantage. A very complete cabinet for this department could be obtained at little or no cost to the university, but as we have no place to put it no effort is made.

It is to be desired that we should be provided for more liberally in the future.

Yours respectfully,

GEO. B. KAUFFMAN,
Associate Professor of Pharmacy.

Ohio State University, November 8, 1888.

PHYSICS.

President W. H. Scott:

DEAR SIR: The following report of the department of Physics for the university year ending June 20, 1888, is respectfully submitted:

The classes in the department were the same as in preceding years. In the laboratory class, twenty-four students were enrolled; in the sophomore class, forty-one, and in the second preparatory class, seventy-four.

The fine pieces of apparatus, whose purchase was made possible by appropriations for the department in recent years, have contributed much to increase the interest in laboratory work and to improve the quality of the work. The work of the past year showed marked improvement, in spite of the fact that the increased number of students in the laboratory aggravated the difficulties incident to the carrying on of such work in our present rooms.

The unprecedented activity in the commercial applications of electricity since my last report to you add increased weight to the reasons there given for the making of adequate provision for practical work in electricity. As you know, the trustees of the university asked for an appropriation for this purpose last year, but it was not granted, principally because of the unsatisfactory condition of the finances of the state. When the appropriation failed, I called on Mr. J. G. McGuire, treasurer of the Columbus Electric Light and Power Company, and through his kindly interest and aid, secured from the Thomson Houston Electric Company, of Lynn, Mass., a six-light dynamo machine, and from the New York Safety Power Company a thirty-five horse-power automatic engine for our present use. They were received soon after commencement and temporarily mounted in the basement under the chapel. This very generous loan will enable us to do better work this year than ever before; but it is not an adequate provision and may be recalled at any time. A special building for this work with its full equipment of machinery, models and instruments is indispensable. An appropriation of at least $10,000 is necessary. A little inquiry will show that this amount is very small as compared to that which other institutions with whom we compete are spending for this work.

I wish to add here a word in behalf of an increased appropriation for the library.

The works most needed by this department are the complete sets of certain scientific magazines and sets of the proceedings of scientific societies, containing original papers. These sets each cost more than has been allowed this department for the purchase of books in any one year, and they are becoming more expensive and more difficult to obtain from year to year. I hope that an increased allowance may be obtained this year.

Very respectfully,

BENJ. F. THOMAS,
Professor of Physics.

Ohio State University, October, 1888.

VETERINARY MEDICINE.

President W. H. Scott:

SIR: At the close of last term, the veterinary department completed the third year of its existence. The past year, as a whole, has been a successful one. When the department was first established, only two of the students, who entered, were prepared to take advanced studies. One of them left before he graduated, to accept a position as assistant professor in the Agricultural College of Virginia, and the other one, who graduated last year, is now adjunct professor of veterinary science in the Agricultural and Mechanical College of Texas. As the whole course, the preparatory year included, is four years, and as none of the students who entered two years ago could be admitted to an advanced standing, there was last year no senior or fourth-year class. I was therefore at liberty to teach veterinary anatomy (comparative, descriptive and topographic anatomy of the horse, ox, pig, sheep and dog), a study which belongs to the first year of the veterinary course proper. In this study, I had in the fall term a class of six, in the winter term a class of seven, and in the spring term one of eight students.

Seven horses were killed and used as material for instruction. Besides that, I lectured in the fall term on some minor branches not otherwise provided for, and in the spring term I instructed a class of ten students in "principles of horse-shoeing" and diseases of the horse's foot. The clinic, one hour every day, was attended by eight students during the whole year. The number of patients presented for examination and treatment, although exceeding that of the preceding year by at least twenty-five per cent., was not as large as I desired. In the present term, the number of patients presented so far, shows an increase of more than fifty per cent. over that of the last year during the corresponding part of last term. At present I have, besides the daily clinic, which is attended by six students, one class of five students in pathology and therapy, or more particularly "infectious and contagious diseases of live stock, their treatment and prevention," and another class of five students in "surgical diseases" or external diseases and their treatment. Each class requires five lectures a week. In the winter term I shall have the same amount of work, and in the spring term a little more, as I shall have to give every week one extra lecture.

Yours very respectfully,

H. J. DETMERS,
Professor of Veterinary Surgery.

Ohio State University, October, 1888.

ZOOLOGY AND COMPARATIVE ANATOMY.

President William H. Scott:

DEAR SIR: The whole number of students enrolled last year was forty-seven. They were instructed in the several branches as follows: physiology, twenty-one; comparative anatomy, seven; histology, six; agricultural physiology, six; and microscopy, seven.

I have been so short a time in charge of the department that I do not feel prepared to make specific recommendations regarding equipment or changes in the scope and character of the work.

A need pointed out by Professor Tuttle in his annual reports has been partially met by special appropriation by the legislature. The money provided for the purpose is being expended to supply simple apparatus and materials, which will enable a greater number of students to engage in laboratory work at one time. Whilst this particular line of equipment will not be so complete as could be desired, the step taken is evidently in the right direction and will greatly increase the efficiency of laboratory discipline.

It seems to me necessary for the proper teaching of natural history that the zoological collections, especially of the animals of Ohio, should be largely increased and perfected. Could not the collection of mammals, birds, fishes, insects, etc., be greatly improved with but trifling cost, if the friends and alumni of the university are made aware of these deficiencies and our desires? I ask for the cordial co-operation of all concerned in making better the collections of the department.

Yours, respectfully,

D. S. KILLICOTT,

Professor of Zoology and Comparative Anatomy.

Ohio State University, October 16, 1888.

THE LIBRARY.

President W. H. Scott:

DEAR SIR: The following report of the Library, for the year ending June 20, 1888, is respectfully submitted:

The total number of books, exclusive of pamphlets, owned by the Library at that date, was 8,411. The addition, by gift or purchase, since June 22, 1887, was 703 volumes, among which are included periodicals that have been bound and a number of inexpensive duplicates; the latter ought henceforth to be, for the most part, confined to the various departments and regarded as a part of their equipment. The Library should not furnish the students with text-books.

The resources of the Library have been materially increased during the year, and the students of the university have almost without exception availed themselves of its advantages.

No large addition has been made to any one department, but valuable works have been procured for all. I believe it can be fairly claimed for this Library that, though small, its value is greatly enhanced by the recentness of a large proportion of the books which it contains. A good selection of representative periodicals, foreign and domestic, keeps the entire collection well abreast with the most recent discoveries in science and letters.

Several sets of periodicals have been completed since my last report:

The *Popular Science Monthly* (of which many numbers were the gift of Professors Norton and Tuttle), *Mind*, *Botanical Gazette* (lacks a few parts), *American Journal of Archæology.*

The work of completing, or adding, sets of important periodicals will be continued as vigorously as our means and the interests of other departments of the Library permit.

It must be kept in mind that the number of libraries is rapidly increasing, and that in the nature of things the supply of back numbers of periodicals is decreasing.

Without attempting to enumerate here other gains made by the library, I am glad to record the fact that, with the exception of the secret journals of the continental congress, we now possess a complete record, in the various series, of the proceedings of congress from the beginning of our national government to the present time.

PERIODICALS.

The various periodicals for which we subscribe have reached the Library more regularly and in better condition than for several years. Mr. G. E. Stechert, of New York, has supplied the following foreign periodicals:

Biologische Centralblatt, Deutsche Rundschau, Mathematische Annalen, Landwirthschaftliche Versuchsstationen, Historische Zeitschrift, La Lumiere Electrique, Revue des deux Mondes, Chemical News, Electrician, Engineering, English Historical Review, Geological Magazine, Journal of Botany, Journal of the Chemical Society, Journal of Mental Science, Journal of the Statistical Society, Philosophical Magazine, Mind, The Observatory, Quarterly Journal of Geol. Society, Spectator, and *Veterinary Journal.*

Through Mr. A. H. Smythe have been received: The *Scientific American, Popular Science Monthly, American Machinist, Engineering and Mining Journal, Sanitary Engineer, Railroad Gazette, Bulletin of Torrey Botany Club, Breeders' Gazette, Rural New Yorker, American Dairyman, Magazine of American History, The Nation, Edinburgh Review, Quarterly Review, Nineteenth Century, Contemporary Review, Fortnightly Review, New Princeton Review, Forum, North American Review, American Journal of Science and Art, Andover Review, American Journal of Philology, Science, Atlantic Monthly, Library Journal, American Journal of Mathematics, Nature, Journal of Economics, Journal of Franklin Institute*, and *Botanical Gazette.*

As in former years, we have received without cost, a considerable number of newspapers and magazines. Gifts of books have been made to the Library by the United States government, the state of Ohio, the Royal Society of Canada, the Canadian government, the Institute of Mining Engineers, Society of Mechanical Engineers, the Columbus Horticultural Society, the Experiment Stations of Ohio and many other states, Hon. John Sherman, Hon. J. H. Outhwaite, members of the Board of Trustees and Faculty of the University, Cincinnati Chamber of Commerce, and several unknown donors. To all these friends of the university gratitude is due for their kindness.

During the past year the amount of furniture in the reading-room has been doubled without exceeding, or quite equaling, the demand made upon us for accommodation there by students who make of the Library a study-room in which to prepare lessons for ensuing recitations. This use of the library is not an unmixed good; it puts upon the officers of that department the difficult task of preserving quiet among a large number of persons crowded into a small space, who must be allowed large liberty in coming and going and in moving about the room to consult books of reference.

It is becoming more and more evident that larger quarters are requisite for the use of this department of the university, and that this valuable collection of books should be placed in a fire-proof building.

Permit me to repeat the statement made in former reports that the growth of the Library is seriously crippled by the reduction of the annual appropriation to one thousand dollars. Of this sum about one-half is needed to purchase and preserve by durable binding the periodicals now upon our list—a list, I may say, of modest length,—while the remainder is divided between the general library and more than twenty departments, each of which could wisely use several times the pittance it now gets.

Another need is that of a professional librarian; no one is more conscious than the present incumbent that his duties in this department demand a special training which he does not possess and cannot hope to acquire. He trusts that irretrievable mistakes may not be made in these early years of the library.

The assistant librarian, Miss Olive B. Jones, has rendered faithful and efficient service and remains in the same capacity the present year.

It would not be easy to find, I think, a library which renders so much service, administered at less cost for current expenses.

Very respectfully yours,

S. C. DERBY, *Librarian.*

Ohio State University, October, 1888.

THE UNIVERSITY GROUNDS.

President W. H. Scott:

DEAR SIR: I have the honor to submit the following report upon the university grounds:

No improvements of marked character have been made during the past year, the appropriation being barely sufficient to keep the grounds in measurably good order.

The walks, drives and roads have been repaired at different points and are now in a fairly good condition.

The injuries to the lawn, caused, in part, by the severe frosts and drouths of the past two or three years, and in part by the ravages of the larvæ of the May beetle, have also been repaired, and the present condition of the lawn is better than it has been for years. This is gratifying, for a *good lawn* is the foundation of all success in landscape gardening.

THE FLOWER BEDS.

These were somewhat increased in extent and generally well cared for. As heretofore, some of the designs were originated by students in floriculture and landscape gadrening.

The aim has been to present examples of inexpensive but neatly designed and well arranged beds of foliage and flowering plants, that would serve as models for private grounds.

TREES AND SHRUBBERY.

Quite a number of the older trees are more or less diseased, and present a sickly or dying condition. These will be removed the coming winter. Some of the trees planted along High street and Woodward avenue have died. These and others that have made a poor growth will be replaced by better specimens in the early spring. The lindens, or bass-woods, planted by my predecessor along the walk leading from Prof. Thomas' residence to the main building have not proven satisfactory. Several have been broken by wind storms; others have made a feeble, unthrifty growth. This failure is not due to neglect, but because trees of this kind are not adapted to the situation. They should be at once replaced by the elm or some equally desirable variety.

Much of the shrubbery has been injured, and not a little killed outright, by the harshness and severity of our climate.

The hedge of Norway spruce which separates the campus from the vegetable garden, has made fair growth and is in good condition.

MINOR IMPROVEMENTS.

Among the slight improvements that have been made during the past year two are worthy of notice:

1. The provision for lighting the grounds by gas, a work that was skillfully executed under the direction of engineer McCracken. The professors who reside upon the campus, and others who attend the meetings of the literary societies, or evening entertainments held in the university buildings, can scarcely fail to appreciate and feel thankful that this long needed want is at last supplied.

2. The other improvement is the clearing-up of the wood lot or forest, situated northeast of the chemical laboratory. In this all the worthless underbrush, logs, stumps, dead and dying trees, have been removed. As this is about the only portion of primitive forest now left on the university estate, no pains should be spared to preserve it. A second growth of trees is better than none, but cannot, for generations to come, rival the grace and magnificence of this original timber growth. This small portion of the university domain ought to be rescued and preserved for the equal admiration and enjoyment of future ages. From time to time walks, drives, arbors, etc., should be constructed, and careful and systematic replanting of the best varieties of trees be made as occasion requires. In my judgment it should not be thinned so as to form an open park, but be kept as an example of a close planted grove or small forest. Treated in this way it would soon become one of the most attractive features of our university grounds. On the north and east it should be guarded from all depredators by a good wire fence, and the board fence now separating it from the campus should be removed.

TREE-PLANTING ON THE CAMPUS.

The enactment of "Arbor-Day" was a wise provision on the part of our law-makers. By this means the attention of the young is called to the feasibility and urgent necessity of tree-planting. Last spring the day was duly celebrated at the university, and each class, from the first preparatory to the senior, including the special courses as well, planted a greater or less number of trees. This planting, done wholly by the students, under my instruction, was eminently successful. The selection of trees was, for the most part, judicious, and not one of the many different varieties planted failed to live, and nearly all made a satisfactory growth.

ATHLETIC GROUNDS.

As soon as means are available, I would recommend the thorough underdraining and grading to an exact level of that portion of the campus lying east of the chemical laboratory, and known as the athletic grounds. A quarter-mile cinder track should then be made, the level of which should be the same as that of the surrounding sod. These grounds could then be used by the athletic association and also by the battalion for drill and dress-parade.

The best site, in my judgment, for an armory, drill-hall and gymnasium, is east and north of the chemical laboratory. If this part of the campus was fitted up and more generally used for drill, there would be less cause for complaint on the part of those who conduct recitations at the time and are seriously annoyed by the band during the drill hour.

I renew my request for an appropriation sufficiently large to keep the ball grounds, tennis courts and quarter-mile track in good order. The amount necessary for this purpose is trifling compared with what is now expended for physical culture by other colleges and universities. As was stated in my last report, "two hundred and fifty dollars judiciously expended, would place and keep these grounds in excellent order throughout the college year. If kept in perfect order, they would be more generally used, to the signal advantage of the great body of our students." This is certainly a very modest demand for the important interest of physical development. Good health is the student's best capital, and a full measure of such health can be maintained only by regular, invigorating exercise. As long as the university has no gymnasium, a reasonable degree of encouragement should be given to field sports.

SLIGHT SUGGESTIONS FOR FUTURE IMPROVEMENTS.

1. The path or walk leading south from the central entrance to the main building, should be changed so as to be at right angles to the front of the building. It should be made of generous width and only slightly elevated above the surrounding lawn, so as not to impede movements in drill or prove an obstacle in the use of the mowing-machine. This walk should proceed due south until the point is reached where it would naturally divide into three branches; one to Neil avenue, to reach the dormitories, one to horticultural hall, and one to the spring and lake. These walks should all be made of hard-burned brick, like the one leading from High street.

2. The low ground just south of the wind-mill and east of Neil avenue, should be converted into an extension of the lake. As the overflow from the spring is large and constant, there is an abundance of fresh water for this purpose.

The slight amount of soil necessary to excavate would all be needed to build a levee between the stream and lakes. The higher ground in the section referred to and occupied by trees, could be converted into islands at slight expense, which would give an additional charm to the landscape.

3. Where the drive or road, which now leads from Prof. Thomas' residence to horticultural hall, crosses the hollow, it ought to branch and a new drive be made. This should follow the little valley and then pass west, just south of where the janitor's house used to stand; thence bearing westward, crossing the stream by a neat rustic bridge, and continuing on the south bank along the brow of the hill until the present lake was passed; then branching, one part passing between the present lake and the proposed "extension," climbing the hill obliquely and reaching Neil avenue just opposite the farm entrance; the other continuing along the south bank of the stream, coming out on Neil avenue a few rods south of the stone culvert.

The advantages of such a drive are many. (1.) It would open up to the public parts of the campus now rarely visited, viz.: The beautiful level south of horticultural hall and the equally beautiful hillside south of the stream.

(2.) It would reveal, from different points, picturesque views of the new station building, the farm house and barn, together with glimpses of the various university buildings.

(3.) It would enable those desirous of visiting the spring an opportunity to do so without descending and climbing a rather steep hill. Those who visited the grounds in carriages during the summer evenings, would be delighted with the weird appearance of the large trees and the water, the effect of which would be greatly hieghtened if some gas-lamps or electric lights could be placed in the vicinity.

These are but suggestions. Anyone who has studied the possibilities of the university grounds, could easily multiply and improve upon them. I have aimed to commend such improvements only as we may reasonably hope can be adopted; not, perhaps, all at once, but gradually and from year to year.

All that has been suggested at this time can be carried out, if deemed desirable, by an appropriation of twenty-five hundred dollars.

ACKNOWLEDGEMENTS.

I again testify to the faithful manner in which Mr. James Kelley performs his duty. I wish also to express my appreciation of the prompt response to every call for men and teams by the officers of the experiment station.

Very respectfully,

William R. Lazenby,
Superintendent of Grounds.

Ohio State University, November 9, 1888.

TREASURER'S REPORT.

COLUMBUS, OHIO, *November* 15, 1888.

To the Honorable THOS. A. COWGILL, *President Board of Trustees of the Ohio State University :*

SIR : I herewith submit my report for the fiscal year ending this 15th day of November, 1888.

The report includes the following statements :

I. Recapitulation.
II. Statement of the Endowment Fund, held by the State of Ohio, the income from which is pledged to the support and maintainance of the University.
III. Statement of Virginia Military Land fund.
IV. Detailed statement of cash receipts during current fiscal year.
V. Detailed statement of cash disbursements during current fiscal year.
VI. A list of professors, officers, teachers and employes, with salaries of each.

Respectfully,

F. W. PRENTISS, *Treasurer.*

STATEMENT I.

RECAPITULATION.

F. W. PRENTISS, *Treasurer in account with Ohio State University :*

		Dr.
To cash		$49,073 76
Balance as per my report 1886–7	$ 7,439 62	
Ohio state treasury, on acc't of int. on Endowment Fund	27,270 48	
Students, on account of term fees	6,042 25	
Ohio state treasury, appr'n refunding am't spent on tower	2,735 00	
Rents, O. S. U. residences	2,567 50	
Sale farm stock	2,500 00	
Virginia Military lands	413 33	
Students, for supplies sold	50 71	
Miscellaneous sources	54 87	

		Cr.
By cash		$49,073 76
Salaries	$36,157 77	
Department supplies	3,086 92	
Fuel and care buildings	1,970 43	
Ordinary repairs	1,427 68	
Advertising	1,387 51	
Furniture	753 55	
Pharmaceutical department	507 88	
Water rents	464 86	
Centennial exhibits	346 85	
Printing	307 78	
Repairs Va. Mil. L. residences	210 15	
Expenses attending farmers' institutes	102 30	
Clearing woods	102 36	
Telephones	100 50	
Miscellaneous sundries	577 60	
Balance	1,569 62	

STATEMENT II.

Statement of the Endowment Fund in Accordance with the provisions of an Act passed February 10, 1870, O. L., vol. 67, page 15, sections 8433 and 8446, R. S.

Principal endowment fund	$537,841 46
Annual income, being interest @ rate 6% per. annum	32,270 48

STATEMENT III.

Virginia Military Land Sales.

Net cash receipts from sales to Nov. 15, 1887, as per my report 1886-7, page 97	$41,587 61
Cash receipts during fiscal year 1887-8	413 33
Net cash receipts to 15th November, 1888	$42,000 94

Note.—$13,665.84 of these receipts have been paid into the Ohio State Treasury to the credit of the Endowment Fund, the remainder having been added to the current funds and applied to the building of new residences for professors, and as otherwise directed by boord of trustees.

STATEMENT IV.

DETAILED STATEMENT OF RECEIPTS BY F. W. PRENTISS, TREASURER, DURING FISCAL YEAR ENDING 15TH NOVEMBER, 1888.

Date.	Received from—	On account of—		Amount.
1887.				
Nov. 16	Balance	As per my report 1886–7		$7,439 62
Dec. 13	Ohio State Treasury	On account of interest on endowm't fund, due 1st Jan, 1888		5,000 00
	W. H. Scott	3d installment rent '87–8	$38 50	
	Benj. F. Thomas	3d " "	42 50	
	W. J. Green	Nov., '87, installment rent	10 00	
				91 00
1888.				
Jan. 3	Ohio State Treasury	Balance interest on endowment fund to 1st Jan., 1888		6,135 24
Feb. 7	Ohio State Treasury	On account of interest on endowm't fund, due 1st July, 1888		3,000 00
	G. W. Knight	3d installment rent '87–8	$37 50	
	W. H. Scott	4th " "	38 50	
	B. F. Thomas	4th " "	42 50	
	W. J. Green	Dec., '87, installment rent	10 00	
	G. W. Knight	4th installment rent, '87–8	37 50	
	W. H. Scott	5th " "	38 50	
	A. H. Tuttle	4th " "	47 50	
	B. F. Thomas	5th " "	42 50	
	C. A. Roth	Jan., '88, installment rent	20 00	
	W. J. Green	" " "	10 00	
				324 50
March 2	Experimental station	Fuel furnished		19 47
	G. W. Knight	5th installment rent '87–8	$37 50	
	B. F. Thomas	6th " "	42 50	
	A. H. Tuttle	5th " "	47 50	
	W. H. Scott	6th " "	38 50	
				166 00
	Ohio State Treasury	On account of interest on endowm't fund due 1st July, 1888		2,000 00
23	Alexis Cope, bursar	Bal. term fees fall term '87:		
		Incidentals	$10 00	
		Chemical laboratory	3 00	
				13 00
		Winter term fees '87–8:		
		Incidentals	$1,405 00	
		Chemical laboratory	150 00	
		Physical "	154 00	
		Mechanical "	65 00	
		Physiological "	65 00	
		Ag'l chemical "	64 00	
		Pharmaceut'l "	56 00	
		Mining "	14 00	
		Botanical "	3 00	
				1,976 00
April 3	C. A. Roth	Feb., '88, installment rent	$20 00	
	G. W. Knight	6th installment rent '87–8	37 50	
	W. H. Scott	7th " "	38 50	
				96 00
5	Ohio State Treasury	On account of interest on endowm't fund due 1st July, 1888		3,000 00
18	Ohio State Treasury	Appropriation refunding amount spent repairing tower		2,735 00
20	Experimental station	Part payment for stock and farm implements		2,500 00

STATEMENT IV.—Concluded.

Date.	Received from—	On account of—		Amount.
1888.				
June 11	Ohio State Treasury	On account of interest on endowm't fund due 1st July, 1888		$5,000 00
	Alexis Cope, bursar	Spring term fees '87–8:		
		Chemical	$130 00	
		Physical	133 00	
		Mechanical	55 00	
		Physiological	65 00	
		Pharmaceutical	72 00	
		Agr'l chemical	48 00	
		Botanical	3 00	
		Incidentals	1,320 00	
				1,826 00
	W. H. Scott	8th installment rent '87–8	$38 50	
	A. H. Tuttle	6th " "	47 50	
	G. W. Knight	7th " "	37 50	
	N. S. Townshend	1 year's rent to 1st May, '88	300 00	
	W. H. Scott	9th installment rent '87–8	38 50	
	G. W. Knight	8th " "	37 50	
				499 50
	Alexis Cope, secretary	Old paper sold		84
	" "	Receipts floral dep't, April, 1888		7 30
30	Ohio State Treasury	Balance interest on endowment fund to 1st July, 1888		3,135 24
	C. A. Roth	Mar., Apr. & May, '88, installment rent	$60 00	
	G. W. Knight	9th installment rent '87–8	37 50	
	B. F. Thomas	7th " "	42 50	
	W. H. Scott	10th " "	38 50	
				178 50
	Sam'l Kendrick	On account discovery No. 9	$90 00	
	" "	" " 64	200 00	
	" "	" " 65	123 33	
				413 33
Sept. 8	A. H. Tuttle	7th, 8th, 9th and 10th installments rent '86–7, and balance rent for year 1888		665 00
Nov. 9	B. F. Thomas	8th installment rent '87–8	$42 50	
	G. W. Knight	10th " " "	37 50	
	"	1st " " '88–9	37 50	
	W. H. Scott	1st " " " "	38 50	
	D. S. Killicott	Account rent 1888–9	45 00	
	C. A. Roth	June, July, Aug. and Sept., '88, installments rent	50 00	
	G. W. Knight	2d installment rent '88–9	37 50	
	D. S. Killicott	Account rent 1888–9	40 00	
	B. F. Thomas	9th and 10th installments rent 1887–8	85 00	
	W. H. Scott	2d installment rent '88–9	38 50	
	C. A. Roth	Oct., '88, " "	10 00	
				462 00
	S. A. Norton	Supplies sold students		50 71
	Alexis Cope, bursar	Fall term fees 1888		2,227 25
14	W. R. Lazenby	Rents floral department		26 00
	B. F. Thomas	1st and 2d installments rents '88–9		85 00
	S. W. Robinson	Sale old iron		1 26
				$49,073 76

STATEMENT V.

Detailed Statement of Disbursements, by F. W. Prentiss, Treasurer, during Fiscal Year Ending November 15, 1888.

Date.		To whom paid.	For what purpose.	No.	Amount.
1887.					
Nov.	25	D. W. Roberts	Carp. work, chemical lab	1	$75 77
	26	Alice K. Williams	Salary Nov., '87, installment	2	100 00
		Sidney A. Norton	“ “ “	3	225 00
		A. H. Tuttle	“ “ “	4	225 00
		A. H. Welsh	“ “ “	5	120 00
		Geo. W. McCoard	“ “ “	6	120 00
		H. A. Weber	“ “ “	7	225 00
		J. N. Bradford	“ “ “	8	100 00
		R. D. Bohannan	“ “ “	9	225 00
		E. A. Eggers	“ “ “	10	120 00
		S. C. Derby	“ “ “	11	225 00
		C. E. Kilbourne	“ “ “	12	50 00
		J. R. Smith	“ “ “	13	225 00
		Wash. Townsend	1½ days' labor	14	2 25
		H. J. Detmers	Salary Nov., '87, installment	15	120 00
		C. P. Sigerfoos	“ “ “	16	15 00
	29	Alexis Cope	“ to Nov. 15, 1887	17	54 17
		W. S. Devol	“ Nov., '87, installment	18	50 00
		Edward Orton	“ “ “	19	225 00
		Geo. W. Knight	“ “ “	20	225 00
		W. R. Lazenby	“ “ “	21	225 00
		N. W. Lord	“ “ “	22	100 00
	30	C. N. Brown	“ “ “	23	140 00
Dec.	1	Columbus Post-office	Postage stamps	24	15 00
		R. W. Tyler	Salary to Dec. 1, 1887	25	30 00
		W. H. Scott	“ Nov., '87, installment	26	300 00
	2	Horace H. Blunt	Labor	27	6 60
	3	Jos. F. Whitney	Salary Nov., '87, installment	28	80 00
		C. C. Oviatt	“ “ “	29	12 50
		S. W. Robinson	“ “ “	30	225 00
		Benj. F. Thomas	“ “ “	31	225 00
		W. J. Green	“ to Dec. 1, 1887	32	25 00
	5	N. S. Townshend	“ Nov., '87, installment	33	225 00
		G. B. Kauffman	“ “ “	34	100 00
	6	F. W. Prentiss	“ to Nov. 15, 1887	35	12 50
	8	L. B. Wing	Expenses, trip to Washington	36	40 75
	9	Fred. Keffer	Salary Nov., '87, installment	37	80 00
		C. G. Newton	Repairs	38	11 94
		M. F. Capron	Labor, physical dep't	39	3 51
	10	Jas. Clark	Repairs	40	16 00
	12	Alexis Cope	Salary to Dec. 1, 1887	41	83 33
	13	F. V. Iliff	40 bushels lime	42	6 40
	14	D. W. Groff	Freight and drayage	43	9 30
		H. H. Blunt	Cleaning hortic'l hall, Nov	44	6 45
	15	Jos. Zentmayer	Supplies, physical dep't	45	30 00
		Bausch & Lomb, Optical Co	“ “ “	46	81 19
		C. P. Sigerfoos	“ “ “	47	6 38
		Col. B. & S. Pipe Works	Repairs	48	12 98
		Geo. M. Maris & Co	Supplies, mechanical dep't	49	6 12
		“	Supplies, for general repairs	50	9 85
		Siebert & Lilley	Stationery	51	10 75
		Aston & Huff	Stoves, dormitory	52	21 00
		Schroth & Potter	Window shades	53	4 05
		R. O. Smith & Co	Lumber	54	14 52
		D. Y. Murdock	Advertising	55	6 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1887.				
Dec. 15	Halm Bellows Furniture Co	Case for chemical dep't	56	$27 00
	U. S. Express Co	Freight on box	57	60
	Cherrington & Robinson	Stamp for treasurer	58	2 75
	Johnson & Co	Supplies	59	10 50
	W. R. Kinnear & Co	Repairs, roofs	60	33 87
	Col. B. & S. Pipe Works	Fittings for repairs	61	7 37
	Geo. M. Maris & Co	Glass, repairs	62	3 93
	Mt. Gilead Pottery	Supplies, botanical dep't	63	30 70
	R. O. Smith & Co	“ physical “	64	12 60
	J. H. Bunnell & Co	“ “ “	65	8 25
	Kilbourne, Jones & Co	“ mechanic'l “	66	28 36
	Kelley & Co	Rep. Va. Mil. Lands, res	67	3 80
	Ohio Furniture Co	2 walnut tables	68	15 00
21	Alice K. Williams	Salary Dec. '87, installment	69	100 00
22	W. H. Scott	“ “ “	70	300 00
	Edward Orton	“ “ “	71	225 00
	Sidney A. Norton	“ “ “	72	225 00
	N. S. Townshend	“ “ “	73	225 00
	A. H. Tuttle	“ “ “	74	225 00
	S. W. Robinson	“ “ “	75	225 00
	N. W. Lord	“ “ “	76	100 00
	S. C. Derby	“ “ “	77	225 00
	W. R. Lazenby	“ “ “	78	225 00
	J. R. Smith	“ “ “	79	225 00
	H. A. Weber	“ “ “	80	225 00
	Benj. F. Thomas	“ “ “	81	225 00
	R. D. Bohannan	“ “ “	82	225 00
	G. W. Knight	“ “ “	83	225 00
	H. J. Detmers	“ “ “	84	120 00
	Chas. E. Kelbourne	“ “ “	85	50 00
	C. Newton Brown	“ “ “	86	140 00
	E. A. Eggers	“ “ “	87	120 00
	Geo. B. Kauffman	“ “ “	88	100 00
	Fred. Keffer	“ “ “	89	80 00
	G. W. McCoard	“ “ “	90	120 00
	J. N. Bradford	“ “ “	91	100 00
	A. H. Welsh	“ “ “	92	120 00
	Jos. F. Whitney	“ “ “	93	80 00
	C. C. Oviatt	“ “ “	94	12 50
	C. P. Sigerfoos	“ “ “	95	15 00
	Olive B. Jones	“ 3 insts	96	30 00
	W. S. Devol	“ Dec. '87, installment	97	50 00
	W. J. Green	“ to Jan. 1, 1888	98	25 00
	Alexis Cope	“ “	99	166 67
	F. W. Prentiss	“ “	100	37 50
	W. C. McCracken	“ “	101	66 67
	E. C. Grove	“ “	102	33 33
31	R. W. Tyler	“ “	103	30 00
1888.				
Jan. 11	Wash. Townsend	Labor as janitor	104	44 25
13	W. R. Kinnear & Co	Repairs, roofs	105	100 00
	M. F. Capron	Repairs and supplies	106	22 19
	C. E. Skinner	Labor, mechanical dep't	107	10 60
17	A. H. Tuttle	Supplies, physical “	108	12 75
16	David O'Brine	“ chemical “	109	24 07
	Col. Cabinet Co	“ veterinary “	110	36 00
	J. C. Welton	Music for band	111	3 75
	Kauffman, Lattimer & Co.	Supplies, pharmacy dep't	112	3 97
	M. M. Scott	Labor, geological dep't	113	15 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888.				
Jan. 16	Aston & Huff	Supplies physical de'pt	114	$25 00
	Kilbourne, Jones & Co	“ “	115	6 40
	J. W. Queen & Co	“ “	116	7 73
	Frank Prine	“ “	117	24 25
Jan. 16	P. W. Garfield	“ physio. “	118	10 60
	G. W. Maris & Co	“ “	119	65
	Glock & Talmadge	“ “	120	1 05
	Cornell-Pheneger Chem. Co	“ “	121	6 16
	R. O. Smith & Co	“ “	122	21 02
17	Seibert & Lilley	Stationery, Dr. Scott	123	2 00
	Williams & Co	Advertising, etc., O. dir'c't'y	124	17 00
	Krauss & Meehan	Supplies, rugs	125	10 00
	Hann & Adair	Printing programme	126	20 35
	Adams Express Co	Freight, packages reports	127	11 25
	Col. Transfer Co	Drayage	128	1 00
	Stitt, Price & Co	Lime and drayage	129	2 90
	N. W. Lord	Ex. att'g farmers' institute	130	6 30
	W. R. Lazenby	“ “	131	18 65
	Col. Brass & St'm Pipe W'ks	Fittings, repairs	132	8 55
	Adam Schneider	Brick for repairs	133	9 87
	Thos. G. Neski & Co	Rep's plumbing	134	90
	R. O. Smith & Co	Lumber for repairs	135	2 95
	Aston & Huff	Repairs Dr. Scott's residence	136	32 50
	Borger Bros. & Co	“ of boilers	137	18 80
	Geo. M. Maris & Co	Glass for repairs	138	4 17
	Aston & Huff	Rep'rs Prof. Knight's res	139	2 25
25	Col. post-office	Postage stamps	140	17 00
28	W. H. Scott	Salary Jan'y, '88, installment	141	300 00
	Edward Orton	“ “ “	142	225 00
	S. A. Norton	“ “ “	143	225 00
	N. S. Townshend	“ “ “	144	225 00
	A. H. Tuttle	“ “ “	145	225 00
	S. W. Robinson	“ “ “	146	225 00
	N. W. Lord	“ “ “	147	100 00
	S. C. Derby	“ “ “	148	225 00
	W. R. Lazenby	“ “ “	149	225 00
	J. R. Smith	“ “ “	150	225 00
	H. A. Weber	“ “ “	151	225 00
	B. F. Thomas	“ “ “	152	225 00
	R. D. Bohannan	“ “ “	153	225 00
	G. W. Knight	“ “ “	154	225 00
	H. J. Detmers	“ “ “	155	120 00
	Chas. E. Kilbourne	“ “ “	156	50 00
	C. Newton Brown	“ “ “	157	140 00
	Alice K. Williams	“ “ “	158	100 00
	E. A. Eggers	“ “ “	159	120 00
	G. B. Kauffman	“ “ “	160	100 00
	Jos. F. Whitney	“ “ “	161	80 00
	Geo. W. McCoard	“ “ “	162	120 00
	Jos. N. Bradford	“ “ “	163	100 00
	A. H. Welsh	“ “ “	164	120 00
	Fred'k Keffer	“ “ “	165	80 00
	W. S. Devol	“ “ “	166	50 00
	W. J. Greene	Salary to 1st Feb., 1888	167	25 00
	C. C. Oviatt	“ Jan'y, '88, installment	168	12 50
	Olive B. Jones	“ “ “	169	15 00
	W. C. McCracken	“ to 1st Feb. 1888	170	66 67
	E. C. Grove	“ “ “	171	33 33

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888.				
Jan. 28	R. W. Tyler	Salary to 1st Feb., 1888	172	$30 00
	Alexis Cope	" " "	173	166 66
	F. W. Prentiss	" " "	174	25 00
	C. P. Sigerfoos	" Jan'y, '88, installment	175	15 00
	W. S. Devol, farm sup't	Hauling	176	45 25
Feb. 4	H. J. Detmers	Ex. attend'g farmers' institute	177	4 20
	W. R. Lazenby	" " "	178	6 35
	A. H. Tuttle	" " "	179	15 65
	P. S. Suydam	Supplies Greek department	180	1 90
	Wm. G. Dunn & Co	General Supplies	181	3 00
	W. H. Rosevelt	One horse for dissection	182	5 00
	Eimer & Amend	Supplies chemical departm't	183	9 48
	The Cen. Ohio Paper Co	100 m. sheets paper	184	35 00
	The Halm & Bellows Fur. Co	50 students' chairs	185	112 50
	Am. Express Co	Freight	186	5 95
	W. J. Lacey	Horse hire, inauguration	187	2 00
	J. R. McDonald	3 horses, "	188	6 00
	G. H. Twiss	Stationery for president	189	2 62
	Stitt, Price & Co	Lime	190	80
	Frank Prine	Repairs Dr. Knight's res	191	3 00
	Door, Sash & Lumber Co	35 drawing tables	192	248 50
	U. S. Express Co	Freight	193	45
	A. W. Jackson & Son	Binding records	194	2 05
	Kelley & Co	General repairs	195	12 10
	G. M. Maris & Co	Hardware for repairs	196	1 99
	Col. Brass & St'm Pipe W'ks	Fittings "	197	7 10
	H. W. Knight	" rep's Dr. Knight's res	198	6 00
	R. O. Smith & Co	Lumber for repairs	199	7 53
	M. F. Capron	Labor repairs	200	13 71
	F. E. Hayden	Brooms and soap	201	6 85
	H. H. Blunt	Cleaning horticultural hall	202	4 65
	W. R. Kinnear & Co	General repairs, roof	203	57 23
	Col. & H. Coal & Iron Co	Coal delivered	204	416 20
6	Jas. W. Queen & Co	Supplies physical department	205	124 18
21	Washington Gladden	Course lectures	206	50 00
25	W. H. Scott	Salary Feb'y, '88, installment	207	300 00
	Edward Orton	" " "	208	225 00
22	Washington Townsend	Ser. as jan. to 1st Feb'y, 1888	209	37 50
25	S. A. Norton	Salary, Feb'y, '88, installment	210	225 00
	N. S. Townshend	" " "	211	225 00
	A. H. Tuttle	" " "	212	225 00
	S. W. Robinson	" " "	213	225 00
	N. W. Lord	" " "	214	100 00
	S. C. Derby	" " "	215	225 00
	W. R. Lazenby	" " "	216	225 00
	J. R. Smith	" " "	217	225 00
	H. A. Weber	" " "	218	225 00
	B. F. Thomas	" " "	219	225 00
	R. D. Bohannan	" " "	220	225 00
	G. W. Knight	" " "	221	225 00
	H. J. Detmers	" " "	222	120 00
	Chas. E. Kilbourne	" " "	223	50 00
	C. Newton Brown	" " "	224	140 00
	Alice K. Williams	" " "	225	100 00
	E. A. Eggers	" " "	226	120 00
	Geo. B. Kauffman	" " "	227	100 00
	Fred'k Keffer	" " "	228	80 00
	G. W. McCoard	" " "	229	120 00

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888.				
Feb. 25	Jos. N. Bradford	Salary Feb. '88, installment	230	$100 00
	A. H. Welsh	“ “ “	231	120 00
	Jos. T. Whitney	“ “ “	232	80 00
	Oliver B. Jones	“ “ “	233	15 00
	C. C. Oviatt	“ “ “	234	12 50
	W. C. McCracken	“ to March 1, 1888	235	66 67
	E. C. Grove	“ “ “	236	33 33
	Alexis Cope	“ “ “	237	166 66
	F. W. Prentiss	“ “ “	238	25 00
	C. P. Sigerfoos	“ Feb. '88, installment	239	15 00
	R. W. Tyler	“ to March 1, 1888	240	30 00
Mar. 2	W. F. Lavery	Work as prosector, Jan., vet. department	241	20 00
3	Robt. Rusk	Supplies veterinary dep't	242	16 00
	M. F. Capron	Work, min'g dep't, vet'y dep't	243	12 70
7	W. Townsend	25 days, @ $1.50	244	37 50
8	A. H. Tuttle	Expressage, etc., phys'l dep't	245	8 44
	A. H. Smyth	Supplies	246	60
	H. Braun Sons & Co	“	247	2 45
	Col. & Hocking C. & I. Co	On account coal delivered	248	175 52
	U. S. Express Co	Expressage	249	1 20
	American Express Co	“	250	2 90
	Adams Express Co	“	251	1 65
	H. H. Blunt	48 hrs work, hor't dep't	252	7 20
	Kelley & Co	Repairs, dormitory	253	2 85
	Thos, G. Neski & Co	General repairs	254	10 53
	Col. Brass & S. Pipe W'ks	Fittings for repairs	255	7 85
	G. M. Maris & Co	Glass and hardware	256	8 44
	Stitt, Price & Co	Lime	257	3 70
	C. P. Sigerfoos	Supplies physical dep't	258	15 38
	W. R. Lazenby	Expense att'ng farmers ins't	259	9 05
	Cent. Union Telephone Co	Rent timesig. line, Feb. 5, '89 Rent 2 in'ts to Mar. 31, '88	260	50 00
	The Westbote Co	Printing, etc	261	3 00
	Gazette Printing Co	Printing blanks	262	6 50
	H. A. Ward	Skeleton hog & sheep vet. dep't	263	85 00
	R. O. Smith & Co	Supplies vet. dep't	264	4 37
	Glock & Talmadge	“ “	265	3 87
	J. & H. Berge	“ mining dep't	266	21 25
	K. Klotts	“ veterinary dep't	267	5 25
	P. Hayden & Sons	“ mech'l “	268	5 00
	G. M. Maris & Co	“ hort'l “	269	10 70
	Townsend MacCoun	“ Greek “	270	2 00
	Jos. Zentmayer	“ physical “	271	61 65
	R. O. Smith & Co	“ “ “	272	4 95
	Col. Electric Supply Co	“ “ “	273	7 70
	G. H. Twiss	Stationery	274	12 00
	Eimer & Amend	Supplies physical dep't	275	51 06
	P. W. Garfield	Supplies	276	2 55
	A. H. Smythe	“ physio. dep't	277	6 70
	Bansch & Lomb Optical Co	“ “ “	278	16 31
	Cornell-Pheneger Chem. Co	“ “ “	279	13 50
	G. S. Ryder	“ “ “	280	14 30
	Col. Brass & S. Pipe Wks	“ “ “	281	59
	Wm. Halley	Rep's Dr Knight's res (V.M.L).	282	1 55
	Thos. G. Neski & Co	“ “ “ “	283	2 05
	Aston & Huff	Rep's Prof. Tuttle's res “	284	2 25
	Jas. W. Queen & Co	Supplies physical dep't	285	60 70
	Col. Electric Lt. & P. Co	“ “ “	286	14 00

Statement V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888, Mar. 8	Churchman & Co	Supplies physical dep't	287	$5 60
	Eimer & Amend	“ “ “	288	1 40
	W. F. Lavery	“ veterinary dep't	289	20 00
	G. M. Maris & Co	Hardware	290	4 25
	Col. Picture Frame Co	Supplies mech'l dep't	291	1 75
	H. N. Weber	Expense att'g farmers' inst'te	292	7 70
	Dunn & Snyder	On account coal delivered	293	46 00
	Kelley & Co	Repairs dormitory	294	11 70
	W. H. Grubs	Tuning piano	295	2 00
	Col. Brass & S. Pipe W'ks	Fittings for rep's steam pipes	296	2 50
	Capital City Mach'ne W'ks	Repairs gas-works	297	6 72
	Aston & Huff	“ dormitory	298	5 72
	Jas. Clark	“ main building	299	7 00
	P. S. Suydam	Supplies, Greek dep't	300	24 00
14	Columbus post-office	Postage stamps (reports)	301	100 00
17	“ “	300 1 ct. wrappers (reports)	302	3 30
21	E. P. Noel	Repairs steps main building	303	5 25
24	C. Newton Brown	Salary March '88, installment	304	140 00
	Sidney A. Norton	“ “ “	305	225 00
	A. H. Tuttle	“ “ “	306	225 00
	W. R. Lazenby	“ “ “	307	225 00
	N. W. Lord	“ “ “	308	100 00
	H. N. Weber	“ “ “	309	225 00
	W. C. McCracken	“ “ “	310	66 67
28	Edward Orton	“ “ “	311	225 00
29	W. H. Scott	“ “ “	312	300 00
	G. W. McCoard	“ “ “	313	120 00
	N. S. Townshend	“ “ “	314	225 00
	S. W. Robinson	“ “ “	315	225 00
	Sam'l C. Derby	“ “ “	316	225 00
	J. R. Smith	“ “ “	317	225 00
	Benj. F. Thomas	“ “ “	318	225 00
	R. D. Bohannan	“ “ “	319	225 00
	Geo. W. Knight	“ “ “	320	225 00
	H. J. Detmers	“ “ “	321	120 00
	Chas. E. Kilbourne	“ “ “	322	50 00
	Alice K. Williams	“ “ “	323	100 00
	E. A. Eggers	“ “ “	324	120 00
	C. P. Sigerfoos	“ “ “	325	15 00
	Geo. B. Kauffman	“ “ “	326	100 00
	Fred'k Keffer	“ “ “	327	80 00
	Jos. N. Rradford	“ “ “	328	100 00
	A. H. Welsh	“ “ “	329	120 00
	Jos. T. Whitney	“ “ “	330	80 00
	Olive B. Jones	“ “ “	331	15 00
	C. C. Oviatt	“ “ “	332	12 50
	Alexis Cope	“ to April 1, 1888	333	166 67
	F. W. Prentiss	“ “ “	334	25 00
31	Ralph W. Tyler	“ to March 23, 1888	335	23 03
	E. C. Grove	“ to April 1, 1888	336	33 30
Apr. 7	W. M. McDowell	“ “ “	337	12 90
14	Columbus post-office	Postage stamps and wrappers	338	51 10
18	Col. Gas Lt. & Coke Co	On account coke delivered	339	20 02
	Col. & Hocking C. & I Co	“ coal “	340	280 39
	C. W. Newton	Labor, repairs	341	8 00
	“	“ “	342	4 20
	M. F. Capron	“	343	9 42
	Col. Machine Co	Repairs Dr. Scott's residence	344	1 85
	Wm. Fish & Sons	Stone for step	345	5 95

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888. Apr. 18	Geo. M. Maris & Co	Hardware and glass for repairs	346	$34 20
	Col. Brass & S. Pipe W'ks	Fittings for repairs	347	3 66
	Nitschke Bros	Printing, etc	348	13 00
	A. H. Smythe	Stationery	349	1 00
	Siebert & Lilley	" and blank books	350	35 60
	Druggist Circular	Advertising school pharmacy	351	10 00
	Jas. Boyd	Ohio teachers' blue book	352	1 50
	Kilbourne, Jones & Co	Hardware for repairs	353	75
	Schwartz & Schwenker	Toilet paper	354	1 82
	Ohio W'k'g Home for Blind	Brooms, 3 doz	355	6 50
	Washington Townsend	27 days as janitor	356	40 50
	Ralph W. Tyler	Night watchman	357	7 00
	Schroth & Potter	Supplies, engineering dep't	358	16 60
	The U. S. Express Co	Freight on packages	359	1 85
	Col. Transfer Co	Freight and drayage	360	18 38
	Webb & Jones	Carriages	361	9 00
	M. M. Scott	Services rend'd in geol. dep't	362	25 00
	R. O. Smith & Co	Supplies physical department	363	9 44
	D. L. Long & Co	" physio. "	364	4 50
	Gustav E. Stechert	" dep't of Latin	365	10 94
	Jas. W. Queen & Co	" " drawing	366	102 92
	Alexis Cope	" military dep't	367	9 30
	J. C. Welton	Music for band	368	4 60
	T. H. Schneider	"	369	6 60
	H. Braun, Sons & Co	Supplies battalion	370	7 20
	Glock & Talmadge	" veterinary dep't	371	3 10
	Edward L. Brown	" "	372	5 00
	W. F. Lavery	Work as prosector veter'y dep't	373	20 00
	C. E. Skinner	Work mechanical dep't	374	14 80
	M. F. Capron	Work botanical dep't	375	7 85
	H. Braun, Sons & Co	Supplies veterinary dep't	376	20 40
	Bausch & Lamb Optical Co	" chemical dep't	377	51 75
	H. J. Detmers	" "	378	1 00
	W. H. Bullock	" "	379	92 25
	J. & H. Berge	" "	380	55 73
May 3	H. J. Detmers	" veterinary dep't	381	5 30
5	W. H. Scott	Expenses att'd'g farmers' inst.	382	13 70
	Columbus Dispatch	Advertising	383	2 00
	H. H. Blunt	Work horticultural dep't	384	10 65
	Hann & Adair	Programmes, etc	385	10 60
	Cen. Union Telephone Co	Rent to 1st July, 1888	386	25 00
	Col. Electric Supply Co	Supplies	387	2 36
	Palace Liv'y, Cab & Tr'f'r Co	Carriages	388	7 00
	Col. Transfer Co	"	389	13 08
	W. F. Lavery	Work as prosector veter'y de'pt	390	20 00
	Col. Humane Society	Supplies veterinary dep't	391	15 00
	Ohio State Journal	" " "	392	1 25
	Bausch & Lamb Optical Co	" physiological "	393	20 31
	P. W. Garfield	" " "	394	4 50
	Col. Supply Co	" " "	395	75
	Col. Rubber Co	" " "	396	3 80
	C. P. Sigerfoos	" " "	397	9 95
	Kauffman, Lattimer & Co	" pharmacy "	398	139 83
	Jas. W. Queen & Co	" " "	399	10 15
	Schroth & Potter	Wind'w shades, engineer'g dep	400	7 50
	M. E. Shilling	Castings, mechanical dep't	401	5 10
	Col. Brass & Steam P. W'k's	Supplies "	402	11 7
	Hayden & Baker	" "	403	4 34
	Krauss & Meehan	" engineering dep't	404	25

STATEMENT V—Continued.

Date.		To whom paid.	For what purpose.	No.	Amount.
1888.					
May	5	C. G. Newton	Work chemical dep't	405	$4 19
		Jewett Norris	Repairs, band instruments	406	2 00
	12	Col. Post-office	Postage stamps	407	2 00
	19	“	“	408	5 00
June	7	D. McDonald & Co	Bal. due on station meter	409	19 00
		W. S. Devol, farm supt	Wood, hauling, etc	410	41 79
		E. O. Randall & Co	Decorating rooms farm house	411	33 00
		J. & G. Butler & Co	Cement for green-house	412	3 50
		Siebert & Lilley	Letter file	413	65
		H. Braun, Sons & Co	Supplies, paints & oil for rep'rs	414	3 54
		Col. Water Works	6 months' rent to 30th April '88	415	288 20
		S. C. Derby	Expenses visiting schools	416	10 75
		N. S. Townshend	“ att'd'g farmers' inst.	417	29 60
		F. B. Gregg	Badges	418	3 38
		The Richmond & Backus Co	Supplies	419	8 64
		W. U. Telegraph Co	Messages	420	27
		The U. S. Express Co	Freight	421	65
		American Express Co	“	422	3 60
		Adams Express Co	“	423	9 85
		Hann & Adair	Printing, etc	424	11 05
		Engineer & Critic	Advertising	425	12 00
		The Westbote Co	“	426	4 50
		Der Ohio Sonntagsgast	150 copies of paper	427	7 50
		Darling Bros. & Co	Supplies	428	1 00
		The Strobridge Lith. Co	Stationery	429	20 00
		Col. Cabinet Co	Case for geological dep't	430	27 50
		A. L. Yardley	Supplies “	431	2 50
		A. H. Smythe	“ dep't of drawing	432	2 50
		Col. Picture Frame Co	“ “	433	14 10
		E. B. Benjamin M'f'g Co	“ dep't of agr. chem'y.	434	15 10
		C. E. Skinner	Labor mechanical dep't	435	3 65
		Kauffman, Lattimer & Co	Supplies dep't of chemistry	436	549 29
		A. H. Smythe	“ chemical dep't	437	2 00
		Kilbourne, Jones & Co	“	438	90
		Alexis Cope	Amount paid for drum	439	13 05
		Kelley & Co	Repairs Prof. Knight's res	440	22 70
		Wm. Halley	“	441	1 55
		Col. Post-office	500 postage stamps	442	10 00
		“	1,000 “	443	10 00
June	20	H. J. Detmers	Salary June installment	444	120 00
		W. H. Scott	“ “	445	300 00
		S. A. Norton	“ “	446	225 00
		N. S. Townshend	“ “	447	225 00
		A. H. Tuttle	“ “	448	225 00
		S. W. Robinson	“ “	449	225 00
		N. W. Lord	“ “	450	100 00
		S. C. Derby	“ “	451	225 00
		W. R. Lazenby	“ “	452	225 00
		J. R. Smith	“ “	453	225 00
		H. A. Weber	“ “	454	225 00
		Benj. F. Thomas	“ “	455	225 00
		R. D. Bohannan	“ “	456	225 00
		G. W. Knight	“ “	457	225 00
		A. H. Welsh	“ “	458	120 00
		Chas. E. Kilbourne	“ “	459	50 00
		C. N. Brown	“ “	460	140 00
		Alice K. Williams	“ “	461	100 00
		Ernst A. Eggers	“ “	462	120 00
		G. B. Kauffman	“ “	463	100 00

STATEMENT V—Continued.

Date.		To whom paid.	For what purpose.	No.	Amount.
1888.					
June	20	Fred'k Keffer	Salary, June installment	464	$80 00
		G. W. McCoard	“ “ “	465	120 00
		Jos. N. Bradford	“ “ “	466	100 00
		Jos. T. Whitney	“ “ “	467	80 00
		C. P. Sigerfoos	“ “ “	468	15 00
		Olive B. Jones	“ “ “	469	15 00
		C. C. Oviatt	“ “ “	470	12 50
		F. C. High	2 days top. survey of campus	471	2 00
		W. H. Callinan	8½ “ “ “	472	8 50
		A. N. Betts	3 “ “ “	473	3 00
		M. F. Capron	41 hrs. corp. work on repairs	474	9 33
		H. H. Blunt	84 hrs. cleaning hort. buildi'g	475	12 60
		M. V. Hynes	2½ days top. survey of campus	476	2 50
		J. H. Boyd	2 “ “ “ “	477	2 00
		D. T. Roy	2 “ “ “ “	478	2 00
		E. B. Pedow	3 “ “ “ “	479	3 00
	21	A. H. Tuttle	Exp. visit'g sch'ls at Chardon	480	9 50
		G. W. Knight	Paym't of exp. Prest. Willets	481	50 00
		“	Exp. visit'g schools Van Wert	482	11 50
	5	Columbus Record	Advertising	483	17 10
	22	R. D. Bohannan	Exp. visit'g schools Alliance	484	18 10
	23	H. O. Oster	Cleaning machin'y, mech. dept	485	16 05
	25	S. B. Dudley	1 day top. survey of campus	486	1 00
		C. G. Newton	Building platform, commenc't	487	5 30
	30	F. W. Prentiss	Salary to 1st July, 1888	488	25 00
		Alexis Cope	“ “ “	489	166 67
		Ernst A. Eggers	Exp. visiting schools at Alliance, Canton, etc	490	18 00
July	5	C. P. Sigerfoos	Supplies, physiology	491	2 07
		Engelke & Bigelow	Freight and drayage	492	15 07
	6	Winfield & Powell	Music, commencement	493	3 00
		W. R. Lazenby	Exp. visit'g schools, Van Wert	494	10 25
		H. W. Nash	Cleaning vault and cess-pool, Pres. Scott & Prof. Knight's	495	25 00
		Webb & Jones	Carriages	496	6 00
		E. A. Kemmler	3 days top. survey of campus	497	3 50
		Geo. Bloom	½ day “ “ “	498	50
		E. L. Wood	1 “ “ “ “	499	1 00
		C. N. Brown	Axe and stakes for top. survey	500	1 90
		U. S. Express Co	Expressage	501	1 95
		G. M. Maris & Co	Supplies, shovel and spade	502	2 00
		Col. Picture Frame Co	Framing plan of grounds	503	15 00
		Allen Simpson	Music, commencement	504	3 00
		Henry Nagle	“ “	505	3 00
		J. F. Mosure	“ “	506	3 00
	7	Siebert & Lilley	Binding records	507	19 15
		A. H. Smythe	2 pat. lamps, physiog. dep't	508	30 00
		H. H. Blunt	Cleaning hort. building	509	7 65
		The Lantern Publishing Co.	Advertising	510	30 00
		Makio	“	511	15 00
		Photo. Engraving Co	Plates, etc., for catalogue	512	192 00
		D. S. Neville	Print'g photos “	513	4 20
		Strobridge Litho. Co	Diplomas	514	37 50
		Hann & Adair	Printing, etc	515	8 88
		Kauffman, Lattimer & Co	Supplies, chemical dep't	516	81 37
		H. Braunn, Sons & Co	“ physical “	517	3 64
		The M. C. Lilley & Co	“ physio. “	518	8 19
		Col. Picture Frame Co.	Mounting board	519	1 65
		Kilbourne, Jones & Co	1 pr. shears, dep't drawing	520	1 50

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888.				
July 7	Capital City Mach. W'ks	Supplies, mech'l dep't	521	$ 96
	M. E. Shilling	“ “	522	76
	Kilbourne, Jones & Co.	“ “	523	8 93
	Kauffman, Lattimer & Co.	“ mining dep't	524	2 15
	J. & H. Berge	“ “	525	13 50
	Thos. L. Griffin	Caring for arms and equip'ts	526	15 00
	J. C. Welton	8 band stands	527	1 20
	J. K. Farver	Rep. band instruments	528	85
	F. H. Owston	Repairs farm house	529	13 25
	W. R. Kinnear & Co.	“ Prof. Thomas' res	530	6 50
10	Col. Post-office	Postage, catalogue	531	120 00
13	Chas. F. Dill	Music, commencement	532	2 00
18	Col. Brass & St'm-Pipe Wks	Rep'rs, Dr. Townshend's res	533	7 70
	Stitt, Price & Co.	Lime	534	2 30
	Ohio State Journal Co.	Advertising	535	4 50
	N. W. Lord	Supplies, photos of build'gs	536	3 40
	W. U. Tel. Co	Messages	537	25
	Cent. U. Telephone Co.	Telephones, qr. end. Sep. 30,'88	538	25 25
	Wyman & Gordon	Supplies, mech'l dep't	539	6 00
	Capital City Mach. Wks.	“ veterinary dep't	540	3 98
	Col. Cabinet Co.	Case for drawing dep't	541	60 00
31	F. W. Prentiss	Salary to 1st August, 1888	542	25 00
	Alexis Cope	“ “ “	543	166 66
	Col. Post-office	Postage for catalogues	544	46 00
Aug. 7	C. E. Skinner	Services rend. mech. dep't	545	18 59
	Jno. J. Devine	6 days painting, @ $2.50	546	15 00
	Coulter & Kennedy	Whitew'ing fences per contr't	547	25 35
	A. H. Kennedy	104¼ hrs. pa'ting fences, @ 15c	548	15 68
	E. A. Coulter	104¼ “ “ “	549	15 60
8	W. J. Scanlan	58 hrs. clearing woods, @ 15c	550	8 70
	F. H. Peck	28 “ “ @ 12½c	551	3 50
10	C. E. Gains	2¾ days “ @ $1.25	552	3 44
11	U. S. Express Co.	Expressage	553	1 20
	A. H. Smythe	Stationery	554	2 31
14	The Westbote Co.	Printing minutes of board	555	46 50
	Hann & Adair	“ blanks and programs	556	52 25
	Columbus Dispatch	Advertising	557	3 00
	M. A. Joyce	Supplies, physio. dep't	558	8 44
	The Halm & Bellows F. Co.	Chairs, commencement	559	25 00
	The Schwenker Bros. O. L. Co	Bark for rustic bridge	560	12 49
	W. S. Tidball	Lime	561	4 50
	J. & G. Butler & Co.	Cement for repairs	562	1 35
	Wells & Tracy	Supplies for cleaning build'gs	563	16 98
	C. E. Skinner	Repairs weights water-closets	564	90
	G. M. Maris & Co.	Hardware, etc	565	9 00
	Slade & Kelton	Lumber, partition in basement	566	13 11
	R. B. Hough	Part II, American Woods	567	5 00
	D. L. Martin	Geological Map, N. Y. City	568	10 00
29	Chas. Slough	14 days 1 hr. clearing woods	569	17 62
	Freda Deininger	16¼ days clean. b'd'gs, @ $1.25	570	21 56
	Mary Birmingham	12 “ “ @ $1.00	571	12 00
	Chas. F. Scott	Mailing catalogues	572	43 10
	Geo. Churchill	2 days clean'g b'd'gs, @ $1.50	573	3 00
30	Alexis Cope	Salary to 1st September, 1888	574	166 67
	F. W. Prentiss	“ “ “	575	25 00
	S. Gould	2 days 2 hrs. clean'g woods, @ $1.25	576	2 81
	T. J. Scanlan	13 days 8 hrs. clean'g woods, @ $1.50	577	20 70

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888. Aug. 30	Moore, Adams & Co	Lumber, platform commen'nt	578	$13 74
	J. Wiggins & Co	City Directory	579	4 00
	Wells & Tracy	Supplies, lye and sapolio	580	3 80
	Palace Livery C. & T. Co	Hauling bark	581	1 50
	Hershiser & Snyder	Lumber, mechanical lab	582	8 54
	W. U. Telegraph Co	Messages	583	69
31	Webb & Groff	Freight on packages	584	1 75
	Hann & Adair	200 letter circulars	585	3 25
	Journal of Pedagogy	Advertising	586	5 00
	Columbus Dispatch	“	587	9 00
	The Scientific Pub. Co	“	588	10 00
	American Express Co	Freight on packages	589	6 69
	Col. B. & S. Pipe Works	Supplies, etc., physical dep't	590	14 00
	Geo. M. Maris & Co	Nails, etc, hardware for rep'rs	591	19 48
	Kelley & Co	New closets, main building	592	150 00
	Park & Garber	Dynamite, etc., t'kg out stumps	593	2 35
	H. C. Laughlin	7 d'ys clean'g woods, @ $1.25	594	8 75
	Edward Davis	8½ “ “ “	595	10 62
	W. D. Rees	16 1 h “ “ “	596	20 12
	F. H. Peck	3 d'ys “ “ “	597	3 75
Sept. 1	Lizzie Foreman	16 “ “ build'gs, “	598	20 00
	Barbara Miller	20½ d'ys “ “ “	599	25 31
	Maggie Cook	20¼ “ “ “ “	600	25 31
	Maggie Wagner	20¼ “ “ “ “	601	25 31
	Maggie Bobb	18¼ “ “ “ “	602	22 81
	Lizzie Towne	20¼ “ “ “ “	603	25 31
	Mary Grant	16¾ “ “ “ “	604	20 94
	Mary Birmingham	Cleaning “ “	605	3 00
28	David Spencer	Carpenter work pharm. lab., per contract	606	290 00
28	H. J. Detmers	Salary Sept., '88, installment	607	120 00
29	D. S. Kellicott	“ “ “	608	200 00
	N. W. Lord	“ “ “	609	200 00
	Geo. B. Kauffman	“ “ “	610	100 00
	A. H. Welsh	“ “ “	611	180 00
	C. Newton Brown	“ “ “	612	200 00
	H. A. Weber	“ “ “	613	225 00
	J. A. Wilgus	“ “ “	614	40 00
	E. A. Eggers	“ “ “	615	180 00
	R. D. Bohannan	“ “ “	616	225 00
	Jos. T. Whitney	“ “ “	617	80 00
	J. J. DeVine	Painting porches of residences Va. military lands	618	18 75
	Jos. N. Bradford	Salary Sept. '88, installment	619	120 00
	G. W. McCoard	“ “ “	620	140 00
	Olive B. Jones	“ “ “	621	20 00
	C. E. Kilbourne	“ “ “	622	50 00
	Samuel C. Derby	“ “ “	623	225 00
	B. F. Thomas	“ “ “	624	225 00
	W. R. Lazenby	“ “ “	625	225 00
	J. R. Smith	“ “ “	626	225 00
	G. W. Knight	“ “ “	627	225 00
Oct. 1	C. P. Sigerfoos	“ “ “	628	25 00
3	Lizzie Towne	2½ d'ys clean'g b'ldgs, @ $1.25	629	3 12
	Maggie Bobb	2½ “ “ “ “	630	3 12
	Maggie Cook	1½ “ “ “ “	631	1 87
	Maggie Wagner	2½ “ “ “ “	632	3 12
	Barbara Miller	2½ “ “ “ “	633	3 12
	C. T. Clark	Advertising	634	50 00

STATEMENT V—Continued.

Date.	To whom paid.	For what puraose.	No.	Amount.
1888.				
	F. W. Fay	Plans and sup. fitting phm. lab.	635	$35 00
	C. E. Skinner	W'k, mech. models mech. dep't	636	29 50
Oct. 4	Wash. Townsend	17 d'ys as jan'r clean'g build's	637	25 50
	B. F. Thomas	Supplies, physical dep't	638	13 50
	B. F. Thomas, Sec'y	Labor and mat. cen. exhibits	639	152 98
	T. J. Scanlan	13 days 7 hrs. wr'k on campus	640	20 55
	Gazette Printing Co	Print'g summer announcem't	641	538 75
6	W. A. Carr	6 days 8½ hours carp. work, chem. building, @ $2.00	642	13 70
	J. C. Early	8½ d'ys car. work chem. building, @ $1.75	643	14 87
	H. H. Blunt	Carp. work, chem. building	644	47 52
	Frederick Keffer	Salary Sept. '88, installment	645	80 00
	Jas. Clark	Rep'g plas. Prof. Tuttle's house	646	9 50
	Harvey E. Smith	Services as visitors' att. during centennial	647	16 50
	Lila J. Piper	200 hours mounting specimens for herbarium, @ 15c	648	30 00
6	M. A. Smith	160 h'rs as vis. at'nt dur. cent'l	649	24 00
	W. H. Clark	186 " " "	650	27 90
	Capital City Mach. Works	Castings for electrical engine	651	6 53
	R. K. Beach	3 days painting green-house	652	4 50
	Harry R. Hall	13½ h'rs carp. work chem. bl'g	653	2 36
	C. C. Smith	60 h'rs as visitors' attendaut	654	12 00
	Edward Orton	Supplies geological dep't	655	15 00
10	Eimer & Amend	" chemical dep't	656	2 00
	Columbus Cabinet Co	3 chairs for chapel	657	28 50
	G. H. Twiss	Supplies chemical dep't	658	92
	Joshua Bailey	" mechanical dep't	659	13 26
	Door, Sash, & Lumber Co	" German dep't	660	21 00
	Geo. C. Parsons	" phys'l dep't	661	21 92
	H. H. Blunt	87 hrs. wrk. on campus @ $1.50	662	13 05
	Fred. Schlatter	15 days as helper to st'm fitter	663	22 50
	Chas. Johnson	6 " " "	664	9 00
	W. U. Telegraph Co	Message	665	55
	Engelke & Bigelow	Drayage	666	3 00
	U. S. Express Co	Expressage	667	5 20
	Columbus Record	Advertising	668	1 00
	Ohio So. Surv. Civil Eng's	"	669	10 00
	Druggists' circular	"	670	7 34
	Samuel Findlay	"	671	7 50
	Alden & Faxon	"	672	19 00
	W. H. Scott	Ex. trip to Cleveland	673	12 19
	Ernest Evans	70 hr's as visitors' attendant	674	10 50
	Albert F. Beck	16 days " "	675	12 00
	Ernest Evans	16 hr's w'k on campus, @ $1.50	676	2 40
	Col. B. & S. Pipe Works	Supplies for repairs	677	3 10
	Hann & Adair	Printing, etc	678	53 10
	F. B. Ihrig	Chimney stack north build'g	679	6 50
	Borger Bros. & Co	Repairing boilers	680	214 33
	G. M. Maris & Co	Hardware supplies for rep'rs	681	34 54
	Slade & Kelton	Lumber for rep. prop. house	682	11 16
	Kelley & Co	Plumbing dormitory	683	2 85
	Jas. G. Pulling & Co	Repairing steam pump	684	98 98
	Schroth & Potter	14 window shades	685	21 00
	Aston & Huff	Furnace door, Dr. Scott's	686	2 25
	C. G. Newton	9½ d'ys' carp. w'k, rep., @ $2.25	687	21 37
	E. O. Randall & Co	Papering Prof. Thomas' res.	688	70 00
	H. Braun, Sons & Co	Paints, oils, etc., repairs	689	52 59

STATEMENT V—Continued.

Date.		To whom paid.	For what purpose.	No.	Amount.
1888.					
Oct.	20	Col. post-office	Postage stamps	690	$17 50
	27	W. H. Scott	Salary, Oct. '88, installment	691	300 00
		Edward Orton	" " "	692	225 00
		S. A. Norton	" " "	693	225 00
		N. S. Townshend	" " "	694	225 00
		S. W. Robinson	" " "	695	225 00
		S. C. Derby	" " "	696	225 00
		W. R. Lazenby	" " "	697	225 00
		J. R. Smith	" " "	698	225 00
		H. A. Weber	" " "	699	225 00
		B. F. Thomas	" " "	700	225 00
		G. W. Knight	" " "	701	225 00
		H. J. Detmers	" " "	702	120 00
		R. D. Bohannan	" " "	703	225 00
		Chas. E. Kilbourne	" " "	704	50 00
		C. N. Brown	" " "	705	200 00
		Alice K. Williams	" " "	706	120 00
		E. A. Eggers	" " "	707	180 00
		Geo. B. Kauffman	" " "	708	100 00
		A. H. Welsh	" " "	709	180 00
		Geo. W. McCoard	" " "	710	140 00
		J. N. Bradford	" " "	711	120 00
		Jos. T. Whitney	" " "	712	80 00
		Fred'k Keffer	" " "	713	80 00
		J. A. Wilgus	" " "	714	40 00
		C. P. Sigerfoos	" " "	715	25 00
		O. B. Jones	" " "	716	20 00
		C. C. Smith	2 weeks' services pres'ts clerk	717	6 25
		D. S. Kellicott	Salary Oct., '88, installment	718	200 00
		Alexis Cope	Salary to 1st Nov. 1888	719	166 66
		F. W. Prentiss	" " "	720	25 00
	31	Wash. Townsend	28½ days as janitor, @ $1.50	721	42 75
Nov.	1	B. F. Thomas, sec'y	Labor & mate'l for cent'l ex.	722	183 87
		H. J. Detmers	Supplies veterinary departm't	723	31 58
		Noah Patterson	Mason work, repairing	724	17 50
	2	D. Jennings	3 days' h'lp'r to m's'n, @ $2.00	725	6 00
		The A. Schwartz P.&S. H.Co	Pl'b'g ph'rm'cy lab't'y & rep's	726	199 08
		D. S. Kellicott	Supplies physio. department	727	9 80
		Adams Express Co	Expressage	728	13 50
		C. P. Sigerfoos	Supplies physio. department	729	9 11
		W. C. Short	Painting artillery caissons	730	3 00
		Jno. R. Cook & Son	Supplies	731	45
		Engelke & Biglow	Drayage	732	5 00
		The Fish Press'd Brick Co	2,300 brick, Dr. Knight's res.	733	12 65
		Strobridge Lith. Co	Plate and letter heads	734	59 50
		Olive B. Jones	Services as ass't librarian	735	14 70
		Haydenville Min.&M'f'g Co	Coal delivered	736	4 50
		S. B. Dudley	Repairs band instruments	737	1 25
		G. W. Crandell & Co	Supplies	738	1 05
		Remington Bros	Advertising 132 Ohio N. P.	739	160 00
		Col. Water Works	Water rent 6 mo. to Nov. 1, '88	740	176 66
		Jas. Mullen	Supplies civil eng'r's dep't	741	20 00
		O. Inst. Mining Engineers	Advertising	742	10 00
		G. H. Twiss	Tracing cloth, civ. eng. dep't.	743	2 25
		Cent. Union Tel. Co	Telephone, qr. to Dec. 31, '88	744	25 25
		W. R. Kinnear & Co	Rep. Prof. Knight's res	745	3 70
		Cap. City Mach. Works	Supplies mech'l dep't	746	10 39
		Chas. B. Morrey	130 hrs as visitors' attendant	747	19 50

STATEMENT V—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888.				
Nov. 2	Quaker City Chair Co......	6 doz. chairs......................	748	$68 40
	H. C. Laughlin................	43 hours as visitors' attendant	749	6 45
	C. E. Gaines....................	11 days " "	750	16 50
	H. Braun, Sons & Co.........	Supplies phys. dep't......	751	7 15
	H. W. Knight..................	Rep. Prof. Knight's res.........	752	24 00
	Chas. G. Felton................	Ser. as nig't w'ch'n dur. cent'l	753	40 00
	The Am. Drug Cl'k's J'rn'l	Advertising........................	754	10 00
	Col. Warm Air Furn. Co...	Rep. Prof. Knight's res.........	755	1 90
	A. H. Smythe.................	Stationery	756	90
	McClelland & Co.............	Scrap-book.........................	757	1 50
	LaClede Fire B'ck M'f'g Co	Retorts, gas works...............	758	120 50
	Col. Cabinet Co................	Supplies vet. dep't..............	759	1 50
	N. W. Ayer & Son............	Advertising per contract......	760	217 62
	Col. Brass & S. P. Works...	Supplies and fittings...........	761	25 92
	Herman Stutz..................	Cementing floor..................	762	10 75
10	Frank Durbin..................	1 doz. ink erasers................	763	3 00
	Total.......................	....		$47,504 14
	By balance................	....		1,569 62
				$49,073 36

STATEMENT VI.

LIST OF EMPLOYES AND COMPENSATION.

In compliance with section 7 of the organic act, passed by the legislature of Ohio, May 1, 1878, which requires a list of " the number of professors, officers, teachers and other employes, and the position and compensation of each, to be reported annually," I submit the following :

W. H. Scott, President..	$3,000 00
Edward Orton, Professor..	2,250 00
Sidney A. Norton, Professor...	2,250 00
Norton S. Townshend, Professor...	2,250 00
Albert H. Tuttle, "	2,250 00
Stillman W. Robinson, "	2,250 00
Nathaniel W. Lord, "	,500 00
Samuel C. Derby, "	2,250 00
William R. Lazenby, "	2,250 00
Josiah P. Smith, "	2,250 00
Henry A. Weber, "	2,250 00
Benjamin F. Thomas, "	2,250 00
R. D. Bohannan, "	2,250 00
George W. Knight, "	2,250 00
Charles E. Kilbourne, "	500 00
H. J. Detmers, "	1,200 00
C. Newton Brown, Associate Professor.....................................	2,000 00

Alice K. Williams, Associate Professor	1,200 00
Ernst A. Eggers, " "	1,800 00
Alfred H. Welsh, " "	1,800 00
George B. Kauffman " "	1,000 00
George W. McCoard, Assistants	1,400 00
Joseph F. Whitney, "	800 00
Joseph N. Bradford, "	1,200 00
J. A. Wilgus, "	400 00
C. P. Sigerfoos, "	250 00
Alexis Cope, Secretary	2,000 00
Frederick W. Prentiss, Treasurer	300 00
Olive B. Jones, Assistant Librarian	200 00
C. C. Oviatt, Clerk to President	125 00
William McCracken, Engineer	800 00
Ed. C. Grove, Fireman	400 00
Chas. A. Roth, Florist	600 00
Total	$49,775 00

NOVEMBER 21, 1888.

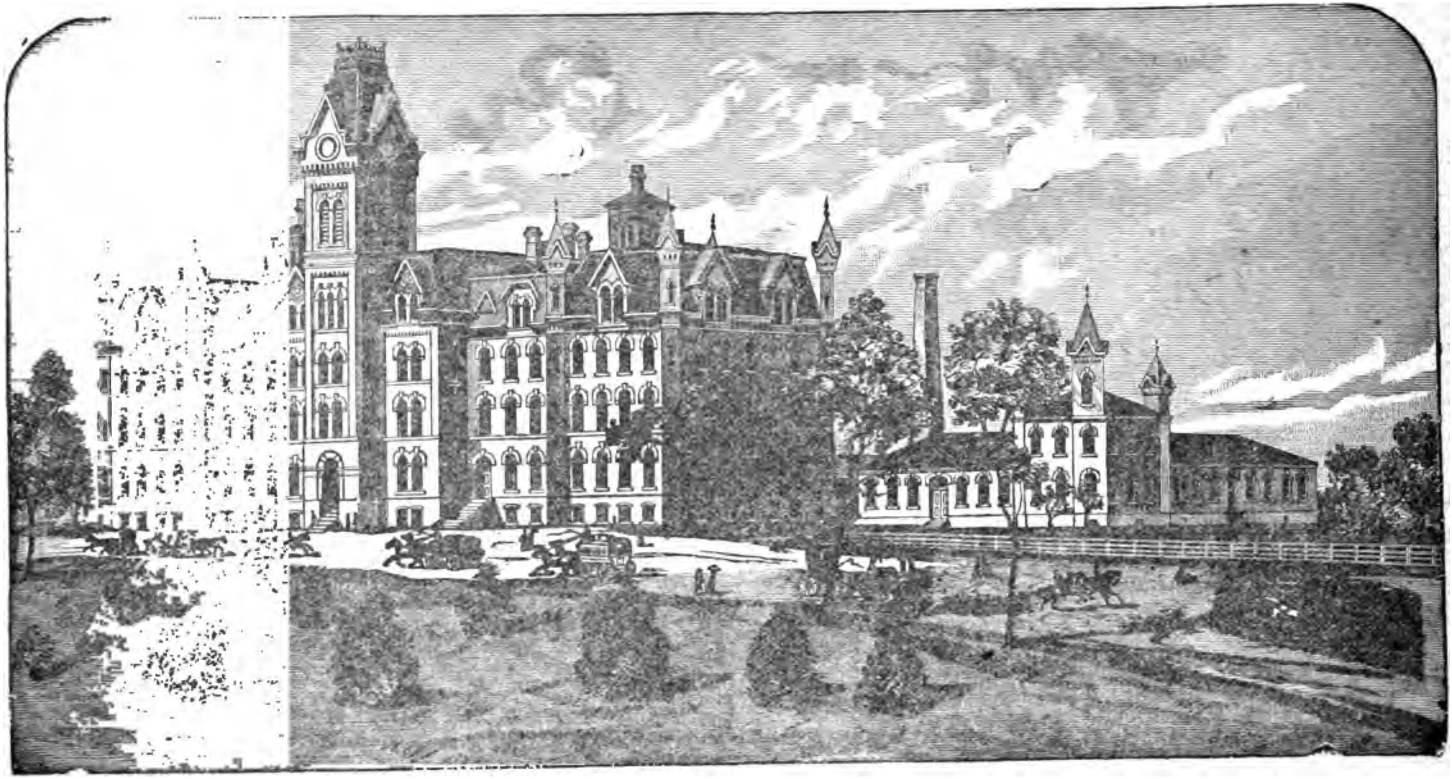
To the Board of Trustees of the Ohio State University:

The undersigned, your finance committee, have, in obedience to your instructions, examined the accounts and vouchers of the treasurer of the University for the fiscal year ending November 15, 1888, and carefully compared them with the records and vouchers in possession of the secretary, and hereby certify that the report of the treasurer submitted to the board for the last fiscal year is correct.

Respectfully submitted.

H. J. BOOTH,
RUTHERFORD B. HAYES,
T. J. GODFREY.

181534



OHIO STATE UNIVERSITY.

NINETEENTH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

OHIO STATE UNIVERSITY,

TO THE

Governor of the State of Ohio,

FOR THE YEAR 1889.

COLUMBUS:
THE WESTBOTE CO., STATE PRINTERS.
1890.

THE NEW YORK
PUBLIC LIBRARY
181535
ASTOR, LENOX AND
TILDEN FOUNDATIONS.
1899.

BOARD OF TRUSTEES.

THOMAS J. GODFREY	Celina.
THOMAS A. COWGILL	Kennard.
JOSEPH H. BRIGHAM	Delta.
HENRY J. BOOTH	Columbus.
DAVID M. MASSIE	Chillicothe.
RUTHERFORD B. HAYES	Fremont.
LUCIUS B. WING	Newark.

OFFICERS OF THE BOARD:

THOMAS A. COWGILL	*President.*
THOMAS J. GODFREY	*Vice-President.*
ALEXIS COPE	*Secretary.*
FRED. W. PRENTISS	*Treasurer.*

EXECUTIVE COMMITTEE:

L. B. WING, T. A. COWGILL, H. J. BOOTH.

FARM COMMITTEE:

JOS. H. BRIGHAM, RUTHERFORD B. HAYES, L. B. WING

FINANCE COMMITTEE:

THOMAS J. GODFREY, H. J. BOOTH, DAVID M. MASSIE.

OHIO STATE UNIVERSITY.

1889-1890.

FACULTY.

WILLIAM H. SCOTT, A. M., LL. D.,
President and Professor of Philosophy.—University Grounds.

EDWARD ORTON, PH. D., LL. D.,
Professor of Geology.—100 Twentieth Street.

SIDNEY A. NORTON, PH. D., LL. D.,
Professor of General and Applied Chemistry.—Town and Grant Avenue.

NORTON S. TOWNSHEND, M. D.,
Professor of Agriculture and Veterinary Science.—University Grounds.

STILLMAN W. ROBINSON, C. E.,
Professor of Mechanical Engineering.—1353 Highland Street.

NATHANIEL W. LORD, E. M.,
Professor of Mining and Metallurgy.—Room 16, Hayden Block, East Broad Street.

SAMUEL C. DERBY, M. A.,
Librarian, and Professor of the Latin Language and Literature.—Indianola Place.

WILLIAM R. LAZENBY, M. AGE.,
Professor of Horticulture and Botany.—University Grounds.

JOSIAH R. SMITH, M. A.,
Secretary, and Professor of the Greek Language and Literature.—Indianola Place

HENRY A. WEBER, PH. D.,
Professor of Agricultural Chemistry.—1342 Forsythe Avenue.

BENJAMIN F. THOMAS, PH. D.,
Professor of Physics.—University Grounds.

JOHN W. QUEEN, A. M., PH. D.,
Acting Professor of History and Political Science.—Indianola Place.

H. J. DETMERS, V. S.,
Professor of Veterinary Surgery.—35 King Avenue.

CHAS. E. KILBOURNE,
First Lieutenant 2d Artillery, U. S. A., Professor of Military Science and Tactics, and Assistant Professor of Mathematics.—815 Franklin Avenue.

R. D. BOHANNAN, B. Sc., C. E., E. M.,
Professor of Mathematics and Astronomy 101 King Avenue.

DAVID S. KELLICOTT, PH. D.,
Professor of Zoology and Comparative Anatomy.—University Grounds.

C. NEWTON BROWN,
Associate Professor of Civil Engineering.—University Grounds.

BENJAMIN L. BOWEN,
Acting Associate Professor of the French Language.—Indianola Place.

ERNST A. EGGERS,
Associate Professor of the German Language and Literature.—Broad and Fourth Streets.

JAMES CHALMERS, A. M.,
Associate Professor of the English Language and Literature.

COLUMBUS, OHIO, *November* 15, 1889.

To His Excellency, GOVERNOR JOSEPH B. FORAKER:

SIR: I have the honor to transmit herewith the nineteenth annual report of the board of trustees of the Ohio State University.

Very respectfully,
Your obedient servant,
ALEXIS COPE,
Secretary of Board.

Report of Trustees.

OFFICE OF THE BOARD OF TRUSTEES OHIO STATE UNIVERSITY,

COLUMBUS, OHIO, *November* 16, 1889.

Hon. JOSEPH B. FORAKER, *Governor of Ohio:*

SIR: In compliance with law, the board of trustees respectfully submit the nineteenth annual report of the Ohio State University.

The part of the irreducible debt of the State which forms the permanent endowment of the university was, at the date of the last annual report, and up to the 26th day of August, of the present year, $537,841.46, upon which the annual interest is $32,270.48. Since the last mentioned date, under the operations of an act entitled "an act to quiet title to unpatented lands in the Virginia military district of Ohio," passed March 14, 1889, the following additions have been made thereto: August 27, $183.50; September 25, $300.00; November 1, $770.38; and November 6, $375.00; total, $1,628.88; making the total sum of such endowment, at the date of this report, $539,470.34, upon which the annual interest is $32,368.20.

The receipts from various sources, exclusive of state appropriations, including the balance in the hands of the treasurer November 15, 1888, have been as follows:

Balance in hands of treasurer November 15, 1888	$1,569 62
Interest on endowment	42,270 48
Term and laboratory fees of students	6,869 75
Rents of residences	1,899 00
Sales of Virginia military lands	840 17
Gas furnished professors residing on campus	123 50
Sale of old iron, brass, paper, etc	135 72
Sale of coal tar from gas works	30 27
Sale of stone about burned laboratory building	120 00
Collected for deeds under act of March 4, 1889	24 00
From sale of plants in floral department	41 40
Sale of old steam pump	30 00
Chemicals sold to students	2 38
Water sold to contractor for electrical building	16 02
Total receipts	$53,972 31

The disbursements have been as follows:

Salaries	$38,282 63
Ordinary repairs	758 81
Fuel and care of buildings	2,428 64
Department supplies and equipment	2,821 30
Printing and advertising	1,245 93
Blank books and stationery	160 06
Water rents	118 28
Attendance farmers' institutes	81 85
Furniture	235 25
Sunday lecture course	265 20
Expenses visiting high schools	36 75
Repairs Virginia military lands residences	283 33
Telephone service	101 20
Postage	101 12
Improvement of campus	289 15
Mehan collection of plants	250 00
Tearing down burned building, etc	452 67
Lectures on entomology	50 00
Commencement expenses	135 19
Centennial exhibits	72 90
Rent of time signal line	25 00
Miscellaneous	752 27
Total disbursements	$48,947 53
Balance in hands of treasurer November 15, 1889	5,024 78

In said accounts are included the funds received from the Virginia military lands which have not been used in building and maintaining residences for the professors, in accordance with the act of April 17, 1882.

The balance of said funds November 15, 1888, was	$9,473 91	
Receipts during the year	840 17	
Total		$10,314 08
Expenses incidental to sale of said lands	$7 85	
Repairs, residences of professors	283 33	
		$291 18
Balance November 15, 1889		$10,022 90

Since the repeal of section 6 of the act of April 3, 1873, such balances have been carried into the account of the current funds of the university. The face value of the outstanding collectible notes received from the sale of said lands, is $2,724.74.

To show fully the actual receipts and disbursements of the university for the last fiscal year, there must be added to the amounts mentioned in the report of the treasurer, the sums received from appropriations made by the general assembly and paid on warrants of the auditor of state.

Below is given a tabulated statement showing the balances of the several state appropriations November 15, 1888, the amounts appropriated during the year, the total amounts subject to draft, the disbursements during the year, and the balances to the credit of said state appropriations, November 15, 1889. In said statement are not included the appropriation made for the temporary equipment and supplies for the departments of general chemistry, agricultural chemistry, mining and metallurgy and veterinary medicine, whose equipment was destroyed by the fire which burned up the chemical laboratory, nor the appropriations for new buildings.

Name of appropriation.	Balance Nov. 15, 1888.	Amount appropriated during year.	Total amount subject to draft during year.	Expended during year.	Balance Nov. 15. 1889.
Ordinary repairs	$15 48	$2,000 00	$2,015 48	$1,990 71	$24 77
Expenses of trustees	495 48	500 00	995 48	331 17	664 31
Fuel and care of build'gs	205 66	2,000 00	2,205 66	2,118 95	86 71
Improvement of campus	30 55	500 00	530 55	293 48	237 07
Salaries	....	10,000 00	10,000 00	10,000 00	....
Green house	404 00	600 00	1,004 00	600 00	404 00
Library	7 99	1,000 00	1,007 99	699 48	308 51
Equipment, etc., school of mines	2,317 13	3,500 00	5,817 13	2,606 69	3,210 44
Appliances for teaching anatomy, etc	435 16	....	435 16	224 56	210 60
Totals	$3,911 45	$20,100 00	$24,011 45	$18,865 04	$5,146 41

The following table shows the disbursements made from current funds added to those made from state appropriations:

Purpose for which disbursed.	Paid out of current funds.	Paid out of State appropriations.	Total.
Ordinary repairs	$758 81	$1,990 71	$2,749 52
Expenses of trustees	....	331 17	331 17
Fuel and care of buildings	2,428 64	2,118 95	4,547 59
Improvement of campus	289 15	293 48	582 63
Salaries	38,282 63	10,000 00	48,282 63
Green house	....	600 00	600 00
Library	....	699 48	699 48
Equipment, etc., school of mines	....	2,606 69	2,606 69
Appliances for teaching anatomy, etc	....	224 56	224 56
Printing and advertising	1,245 93	....	1,245 93
Blank books and stationery	160 06	....	160 06
Water rents	118 28	....	118 28

Articles for which disbursed.	Paid out of current funds.	Paid out of State appropriations.	Total.
Furniture	$235 25		$235 25
Attendance farmers' institutes	81 85		81 85
Expenses examining high schools	36 75		36 75
Sunday lecture course	265 20		265 20
Repairs Virginia military land residences	283 33		283 33
Department supplies and equipment	2,821 30		2,821 30
Mehan collection, plants	250 00		250 00
Telephone service	101 20		101 20
Postage	101 12		101 12
Tearing down burned buildings	452 67		452 67
Course lectures entomology	50 00		50 00
Centennial exhibit	72 90		72 90
Commencement expenses	135 19		135 19
Rent time signal line	25 00		25 00
Miscellaneous	752 27		752 27
Totals	$48,947 53	$18,865 04	$67,812 57

From the foregoing it appears that the total receipts of the university for the fiscal year, exclusive of the state appropriations for temporary equipment of the burned-out departments and new buildings, before mentioned, and inclusive of balances on hand Nov. 15, 1888, have been as follows:

Current funds	$53,972 31	
State appropriations	24,011 45	
Total receipts		$77,983 76
And the disbursements:		
Current funds	$48,947 53	
State appropriations	18,865 04	
Total disbursements		67,812 57
Leaving a balance Nov. 15, 1889		$10,195 12

Of which $5,146.41 is in the state treasury to the credit of the several state appropriations, and $5,024.78 in the hands of the treasurer of the university.

Of the State appropriation of $5,000 for temporary equipment and supplies for the departments of general chemistry, agricultural chemistry, mining and metallurgy and veterinary medicine, $4,618.27 has been expended in the purchase of equipment and supplies, furniture, etc., and in fitting up temporary laboratories to serve until a new building can be erected for their accommodation. Outstanding orders for supplies, etc., will more than exhaust the balance of said appropriation.

Of the appropriation of $10.000 for the erection and equipment of a building for instruction in electrical engineering, the sum of $6,537.25 has been expended in erecting the building, and $1,418.36 in its equipment; the balance, $2,044.39, will all be needed to properly equip the department for the work upon which it has entered.

Of the appropriation of $40.000 for the new laboratory building, there have been paid out for architects' fees, and on estimates of work and material, the sum of $15,828.52, leaving a balance of $24,171.48, which will all be consumed in the construction of the building, the estimates and contracts being just within the appropriation. The building will be ready for the roof in a few days, and the contractors hope to have it inclosed so that the inside finishing can be continued during the winter months.

In August, 1882, Mr. Sam Kendrick, of Chillicothe, was authorized by the board of trustees "to discover, survey, plat, cause to be appraised and sell undiscovered lands in the Virginia military district belonging to the Ohio State University, and known as Virginia Military Lands. The sales and the conduct of all litigations and negotiations concerning the same to be reported to the executive committee of the board of trustees, and by said committee approved before the same should be binding upon either party." The expenses of surveys, platting, appraising, litigating, etc., were to be paid out of the funds received from said lands; of the remainder, after paying said expenses, one-third was to be paid to said Kendrick, and the balance, two-thirds, to the university. Said Kendrick was authorized by said contract "to settle and compromise any case or cases, with the approval of the executive committee, the authority thus given to terminate Nov. 10, 1883." Many of the lands reported by Mr. Kendrick, under said authority, had been purchased in good faith from parties who believed they had valid titles thereto, and had been occupied and improved by the parties in possession and those under whom they claimed title, for periods ranging from 20 to 80 years, and while, perhaps, under recent decisions of the supreme court of the United States, the university may have the naked legal title to many of said lands, the board of trustees has been reluctant to begin suits to dispossess the present occupants, seeking rather to settle and compromise such cases on a basis that would avoid the hardships which would follow the full assertion of the legal claims of the university. The suits brought and threatened created a feeling of insecurity as to land titles in the counties in the Virginia military district, which led to the passage by the general assembly on the 14th day of March, 1889, of the following act:

AN ACT to quiet title to unpatented lands in the Virginia military district of Ohio.

Whereas, The United States, by an act of congress dated February 18, 1871, ceded the unsurveyed lands in said district to the state of Ohio, and,

Whereas, The general assembly of the state of Ohio, by act of March 26, 1872, ceded said lands to the Ohio State University, and,

Whereas, It was supposed at the time of the passage of said acts of cession that the legal title passed only to such lands as had not been surveyed, but it is now understood, and courts have been holding in many actions brought by said university to reclaim defective surveys that the legal title to all unpatented lands in said district where the survey was not returned to the general land office, Washington, D. C., before January 1, 1852, is now in said university. Therefore:

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That as soon as the board of trustees of the Ohio State University accepts the provisions hereinafter made, it is hereby authorized and required to execute and deliver, upon demand, a deed of conveyance to the parties in possession under claim of title of any unpatented survey or part thereof in said Virginia military district; provided, however, that all applicants for such deeds must furnish said trustees with a certified copy of the deed under which they claim, and if required, a certified copy of the unpatented survey in which their lands are situated, as the necessary evidence to satisfy the board that the same has never been patented, but has been occupied and improved by the said parties in possession, or those under whom they claim title, for more than twenty-one years. Provided, also, that each applicant shall pay the board of trustees the sum of two dollars as the cost of preparing and executing such deed.

SECTION 2. The auditor of state shall add the sum of one dollar per acre, reckoned by the number of acres of land in each actual survey for all conveyances so made, to that part of the irreducible debt of the state, which forms the endowment of said Ohio State University. Provided, that in cases where suit has been brought for the recovery of said lands, persons demanding deeds of release shall pay all court costs of such suits.

SECTION 3. This act shall take effect and be in force from and after its passage.

At a meeting of the board of trustees, held on the 20th day of June, 1889, the provisions of said act were formally accepted by the board of trustees of the university and forms of applications and proofs prepared for properly carrying them out. Up to this date thirteen applications for deeds under said act have been approved, and the deeds executed and delivered, the total number of acres so conveyed being 1,628$\frac{88}{100}$. The facts in each case have been duly certified to the auditor of state and claim made for an addition of the sum of $1,628.88 to the endowment of the university.

In the attempts so far made to carry out the provisions of said act difficulties have arisen and are foreseen which may prove troublesome. The act seems to prescribe that the certified copy of the deed under which the applicant claims, and a certified copy of the survey in which his land is located shall be received as evidence that the survey is unpatented and that the applicant has occupied and improved said lands for a period of more than twenty-one years. The act should be amended so as to authorize the board of trustees to require satisfactory evidence of all the facts necessary to establish such claim. It should also be amended so as to provide that the additions to the endowment fund of the university shall be made on June 30th and December 31st, the times from which the semi-annual installments of interest are computed. The law should also be amended so as to provide a period within which said applications shall be filed, with a reservation to the university of the right to reclaim said lands if applications are not filed within the period prescribed.

The number of professors employed by the university is 16, the number of associate professors, 5; assistant professors, 3; assistants, 9. Their positions and compensation, and a list of the other officers and employes of the institution and their compensation will be found elsewhere in this report.

The untimely death of Alfred H. Welsh, associate professor of English language and literature, was a great loss to the university. He had already achieved wide fame as an author, and was on the threshold of what promised to be a life of great distinction and usefulness. As a teacher he was conscientious, earnest and enthusiastic, and inspired these qualities in his pupils. His sudden death, at the beginning of such a career as opened before him, was a great shock to his associates, and his loss is deeply deplored by a wide circle of friends and admirers.

The vacancy occasioned by his death has been filled by the election of James Chalmers, Ph. D., recently professor of philosophy and English at Eureka college.

At the close of the last university year, leave of absence for one year, without pay, was granted to George W. Knight, Professor of History and Political Science, in order that he might go abroad to further perfect himself in his studies. He is now at a German university. During his absence his chair is acceptably filled by John W. Queen, recently professor of political science at Chester Military Academy. Miss Alice Williams, associate professor of French language and literature, was granted a similar leave of absence to pursue a course of study in France, her place having been also acceptably filled by Professor B. L. Bowen, Ph. D., who, at the time of his election, held the chair of French language and literature at Bowdoin college.

The other changes in the teachers' force are set forth in the report of President Scott filed herewith, to which attention is invited.

The number of students in attendance during the university year ending with the annual commencement in June, 1889, was as follows; Fall term, 386; winter term, 346; spring term, 315. The number already enrolled at the present fall term is 415.

At the commencement in June, 1889, the following graduate degrees were conferred on the persons named below:

Degree of Bachelor of Arts—

Charles Walter Mesloh, New Bremen, Ohio.

Bachelor of Philosophy—

Charles Emery Gains, Columbus, Ohio.
Alberta Donizetti Garber, Columbus, Ohio.
Frank Benham Gregg, Springboro, Ohio.
Henry Pomeroy Horton, Pomeroy, "
William Warfield Meek, Columbus, "
Owen Wilson Patchell, Perins' Mills, Ohio.
Alla Berta Rickey, Columbus, Ohio.

Bachelor of Science—

John Adams Bownocker, Amanda, Ohio.
Moses Craig, Columbus, Ohio.
Theodore Lyman Griffin, Columbus, Ohio.
Howard Hagler, Washington, C. H., "
Harry Lepper Kirker, Ironton, Ohio.
Henry St. Clair Newton, Columbus, Ohio.
Albert Newton Ozias, " "
Charles Peter Sigerfoos, Arcanum, "
F. L. Olcott Wadsworth, Wellington, "

Civil Engineer—

George Bloom, Xenia, Ohio.

Engineer of Mines—

Julius Floto, Cincinnati, Ohio.
Harrison Robert Hall, Mogadore, Ohio.

Mechanical Engineer—

Harry Franklin Miller, Columbus, Ohio.
F. L. Olcott Wadsworth, Wellington, Ohio.

Doctor of Veterinary Medicine—

Charles Ellis, Springboro, Ohio.

Graduate in Pharmacy—

David Robert Hancock, Chillicothe, Ohio.
Carl William Wendt, Columbus, Ohio.

The following post graduate degrees were also conferred:

Master of Science—

Horace Lafayette Wilgus, Columbus, Ohio.

Master of Arts—

James Alva Wilgus, Columbus, Ohio.

On the morning of February 12, 1889 the chemical laboratory building and its valuable contents were destroyed by fire. The building was erected in 1882-3, at a cost of about $25,000, and contained the lecture-rooms, laboratories and equipment of the departments of general chemistry, agricultural chemistry, mining and metallurgy and veterinary medicine. The apparatus of said several departments (the accumulation of years), a good store of supplies, and a large number of valuable books were destroyed.

The general assembly promptly made an appropriation of $5,000 for temporary equipment and supplies, which has been expended, as hereinbefore stated. in making temporary provision for continuing the work of said departments. The general assembly also voted an appropriation of $40,000 for rebuilding the laboratory building, for heating, lighting and plumbing the same. Plans for said building were prepared under the direction of the trustees and professors, by Messrs. J. W. Yost and F. W. Fay, architects of Columbus, O., and the contracts for the building were awarded July 30, 1889. The building is designed to accommodate the departments of general chemistry, agricultural chemistry, mining and metallurgy and pharmacy. It is located southeast of the site of the burned building. Its general shape is that of the capital letter T, the stem of the T being formed by a central wing extending to the rear and north of the main body of the building. This wing measures about 40x70 feet, while the body of the building has a frontage of 161 feet, with an average depth of 67 feet. The building will be two stories high, with a basement underneath the whole. The basement is 10 feet 10 inches high in the clear, the first story 15 feet, and the second story 12 feet. The exterior of the building is formed of Zanesville stock brick, laid in red mortar, with brown stone trimmings. The roof is to be of green slate, with overhanging eaves, copper valleys and terra cotta ridge, hip rolls and finials. The interior of the building is to be finished without plaster, the brick walls being made smooth, ready for painting, and the partitions and ceilings being formed of varnished pine. The building is to be heated by the Sturtevant hot blast apparatus, which is supplied with steam by a main from the boiler house. This system provides for the ample and positive ventilation of all rooms, the lack of which is severely felt in the other buildings, and will insure the prompt removal of bad odors and proper working of foul gas hoods. Gas, water and waste pipes are provided at proper points, and made ready for the attachment of sinks, desks and other furniture. The department of general chemistry will occupy nearly the whole of the second floor, having a large lecture room 38x42 feet, capable of seating 150 students, a smaller lecture room seating 40 students, a qualitative laboratory accommodating 40 students, a qualitative laboratory for 18 students; also, preparation, rough work, foul gas, balance, spectroscope, water, store and book rooms, and rooms for special work by the professor in charge.

The department of mining and metallurgy will have smelting and assay, rough work and store rooms in the basement of the east end of the building, a laboratory for 16 students, and a lecture room seating 40 students, a smaller laboratory, store and balance rooms, and an office on the first floor, and on the second floor a draughting room 36x35 feet, a lecture room seating 40 students, and two small rooms for instruments and storage.

The pharmacy department will be on the first floor and will have a laboratory for 25 students, a lecture room seating 60 students, a smaller laboratory, a model drug store, and small rooms for balances and stores.

The department of agricultural chemistry will be located on the first floor, and will have a laboratory accommodating 10 students, a lecture room seating 60 students, with preparation rooms adjacent two smaller laboratories and store and balance rooms

It was hoped that the appropriation would be sufficient to erect a building large enough for the uses of the several departments to be provided for, and at the same time make the structure fire-proof, as such buildings should be. This hope was not realized. The architects, however, have done as much as was practicable, with the means at hand, to make the building slow burning. All the floors are to be of matched planks, on heavy girders, and the second floor is to have, in addition, two inches of mortar deafening. By this method of construction no hidden places are left for the spread of fire, or the habitation of vermin; the rapid destruction of the building is rendered improbable, and the discovery of any incipient fire made easy and certain.

The appropriation for this building was not intended to provide for furnishing the desks, cases, shelving, apparatus and supplies necessary for the proper equipment of said several departments, and it will be necessary to ask the general assembly for an appropriation for this purpose, an estimate therefor being found elsewhere in this report

The general assembly, at its last session, realizing the importance of special instruction in electrical engineering, made an appropriation of $10,000 for the erection and equipment of a building for that purpose. Plans for the building were prepared under the direction of Professor Thomas, by architects J. W. Yost and F. W. Fay, and the contract was awarded June 20, 1889. The work was delayed for six weeks on account of litigation commenced by a disappointed contractor, and the building was not ready for occupancy by the opening of the present term, as was expected. It is now, however, completed, and a large part of the equipment has been secured and is in place ready for use.

It is a plain, substantial two-story building, located northwest of and near the west end of the main building. Its size is about seventy-three by forty-three feet. The first story is 15′ 8″ high with 17″ walls; the second story 12′ 0″ in the clear, with 13″ walls. The foundation is of limestone, the sills, etc., of free stone, and the roof of black slate. In the first story is a laboratory 40x60 feet, with an asphalt floor, an office of 9′ 3″x13′, a store room of 9′ 3″x10′ 6″, an entrance hall and main stairway and a lavatory. In the second story are a lecture room 29′ 9″x44′ 8″, a photometric room 10′ 0″x36′ 0″, a museum 20′ 0″x20′ 0″, two rooms 10′ 0″x13′ 0″, for measurements and instruments, and a room 9′ 6″x20′ 0″ for a private laboratory for the professor in charge. The building was finished on the inside like the chemical laboratory building hereinbefore described, without plaster, and with slow burning floors. This style of finish has been largely used in similar buildings at other colleges, and it is believed will materially lessen the cost of repairs. The building is heated throughout and furnished with power by steam brought through a six-inch main from the boiler house. Gas, water and waste pipes are provided wherever needed. This laboratory is commodious, well lighted and ventilated, is unusually strong in construction, and is an important addition to the equipment of the university. The actual cost of the building, as before stated, was $6,537,25. The sum of $1,418.36 has already been expended in equipment, and through the zeal of Professor Thomas, who visited the principal manufactories of electrical machinery and appliances in the country, the university has received donations as follows: From the Okonite Wire Co , of New York, all the wire used for the circuits. From the Mather Electric Company, of Manchester, Conn., a dynamo for incandescent lighting of 200 lights capacity; from the Thompson Houston Company, of Boston, to whom we have been indebted for similar favors, granted some years ago, a 200-light incandescent dynamo, with accessories; from the Brush Electric Company, of Cleveland, a five horse power constant current motor, a 150-light incandescent dynamo, and 40 cells of storage battery; and from the Falls River and Machine Company, of Cuyahoga Falls, Ohio, a friction clutch pulley of their excellent manufacture; while in prices of belting, shafts, and other supplies, special and heavy discounts have been made. The market value of the donations above mentioned is estimated by Professor Thomas to be over six thousand dollars. The board of trustees take this opportunity to make public acacknowledgments to the above named companies for the valuable aid they have so generously furnished to the university in its efforts to afford opportunity for proper instruction in this interesting and important branch of applied science.

It is probable that the addition of the electrical laboratory building and the increased size of the new chemical laboratory will require more steam than the present boilers will supply and that an additional boiler will be needed. The boilers in use at present are old and much worn, and it will not be long before an entire new steam plant will be needed. It is very desirable that the engineering students should have the opportunity of observing and testing the newer and improved methods employed in the construction of steam boilers, and it is hoped that the means supplied will justify the purchase of a plant that will include the most valuable recent improvements.

The gas holder at the gas works has been in use for over sixteen years, is rotted through in a number of places and leaking badly. The leaks have been stopped from time to time, but it is now in such condition that it is liable to give way at any time. It is not possible to repair it and it will have to be replaced by a new one. The board will therefore be compelled to request an appropriation for this purpose.

The university, from the time of its location, has been without a satisfactory system of sewerage. The different buildings and the residences of professors have been drained into cess-pools located at various points on the grounds. During the past year a trunk sewer has been located by the city of Columbus, designed to afford drainage for the territory north and east of the university estate, its course being southwestward through the lower part of the campus. The contract for its construction has been awarded and it will probably be built during the coming year. While it is in course of construction it would be wise economy to connect the sewers from the university buildings with it. It would also greatly improve the sanitary condition of the vicinity. Professor Brown and the students in civil engineering have been requested to prepare plans and estimates for such a system and it is hoped that the legislature will see the wisdom of making the necessary appropriation therefor.

The progress of the university may be read, not only in the constantly increasing number of students, in the active and zealous work of the president and faculty, as exhibited in their reports, which are attached hereto, but also in the growing popular appreciation of the work the university is doing. It is no longer an experiment, but a permanent potential factor in the educational system of the state. The legislature has recently made liberal appropriations for increasing its usefulness, but it needs still further aid to make it what it should be.

The provisions recently made of a special course of instruction in mine opening, surveying, ventilation, etc., adapted to those engaged in such dustries, has received wide recognition and approval from leading mining journals and organizations of miners and mining engineers throughout the entire country. A number of students from mining regions of other states have been attracted by the opportunities it offers, and larger numbers will seek its advantages as soon as the new laboratory building, in which provision is made for it, is completed. The liberal appropriations for this department should be continued. It is a just recognition of the growing demands of what is now the second in importance among the leading industries of the state.

The shorter course in agriculture is growing in popular favor. The offer of a free scholarship in this course to one student from each county has been accepted by sixteen counties, and it is believed that every county will present a student for such scholarship when the offer is more fully advertised. In this connection it may be stated that more satisfactory arrangements have been made with the Agricultural Experiment Station for furnishing work for students in the agricultural courses, whereby many of them are enabled to pay a portion of their expenses while attending the university. The trustees express their obligation to the board of control of said station, and especially to Mr. C. E. Thorne, its director, and his assistants for the interest and zeal they have manifested in this subject, and also for the aid they have so cheerfully given in providing opportunities for practical illustration of the branches taught in said courses. The relations between said station and the university are cordial and harmonious.

The military department of the university still maintains a high state of discipline and efficiency. The guns used by the infantry battalion having become so worn by long use as to be practically unserviceable, through the efforts of Lieut. Kilbourne arrangements have been made with the war department at Washington for exchanging them for new ones of improved pattern. The old guns were boxed and shipped to the U. S. arsenal at Rock Island on or about October 1. The university is under obligations to the adjutant-general of Ohio for the loan of two hundred rifles for use by the battalion until such exchange can be made.

Special attention is called to that part of the report of President Scott wherein he presents the necessity for additional appropriations for current expenses. The increasing number of students in attendance has made a division of classes and additional instructors a necessity. A number of the associate professors are doing full professorial work withou a professor's pay. The salaries, except in case of the president, are not up to the full limit which the law allows to be paid, and those of some of the associates and assistants ought to be increased. This cannot be done without additional appropriations for salaries.

The appropriation for the library is barely sufficie
periodicals, and provide for binding them and the wo
the report of the librarian and the reports of the vario
be seen that the university is sadly deficient in this
ment. The number of volumes, inclusive of pamphle
June 19, 1889, was 9,313; 430 of these were destroy
laboratory fire, leaving 8,883 volumes at that date.
volumes were obtained by binding periodicals on h
and twenty-eight volumes were donated, being prin
public documents, and 352 volumes were purchased,
tion of 565 volumes, and making the total number
library 9,448. The librarian states that it will take $
$600 already expended, to replace the books lost by
chemical laboratory. At least $5,000 should be appro
year, and for a number of succeeding years, to bring t
needs of the various departments.

Larger appropriations are needed for the improve
Its condition and needs are set forth in the report of
superintendent of the grounds, to which attention is

The appropriations for fuel and care of the buildi
than one-half the sum required to be expended for thi
appropriation for ordinary repairs of the buildings is
erly preserve them, and has to be supplemented by la
from the current funds. The estimates for these ap
after submitted, are based on the actual needs of the
confidently expected that the general assembly will g
hesitation.

The board of trustees again suggest the wisdom o
vision sufficient to provide for present and increasing
versity. The arguments in its favor have been rep
former reports, and experience lends them additional
comprehensive plan for the development of the unive
ening of its field of usefulness can be devised and car
fully so long as it depends, from year to year, on the
the legislature. This "from hand to mouth" policy i
be discontinued. The university should be provided
income sufficient for its growing needs. The sugg
Scott on this subject are worthy of special attention.

In former reports the necessity for additional bu
peatedly mentioned. It may not be amiss to refer to

A fire-proof building for the perservation of the
which is growing more valuable by constant addi

onstantly exposed to danger from fire, should be provided possible. Indeed, it seems almost criminal to longer delay the for such a building.

A building for use as an armory drill hall and gymnasiur stucted as to provide a large hall for public occasions, such mencement, public lectures and university day, is also needed.

A small working observatory and a suitable building for tl modation of the department of veterinary science, are also greatl These, except the last named, have all been strongly recomm previous reports.

The trustees, however, in their last annual report, in p requests for additional buildings, gave precedence to that for ment of manual training. They have reason to believe that quest would have received favorable consideration by the gener bly but for the fire that destroyed the chemical laboratory Such a department would not only meet a popular demand, b be a further direct step in realizing one of the fundamental id land grant, to wit: "The practical education of the industrial The university has already done much in this direction, and, i truly said, that all the laboratories, and especially the mechani atory, are in line with this idea. The manual training departm ever, means more than these. It means the introduction of tl trial element into all the courses of the university. The best the country are fast coming to the conclusion that the introd this element strengthens and invigorates all the faculties, and th tem of education is complete without it.

The establishment of such a department at the state u where the highest test of the value of such instruction can be n be worth to the people of the state all it costs.

Public interest in the subject is manifested by the establis such departments in connection with the public schools in ma cities and towns in the state. Means for their equipment are supplied, but the great difficulty met with, is the scarcity of c teachers. These the university should supply. Believing that is ripe for the introduction of manual training at the unive trustees renew the request for an appropriation of $——— for a and equipment for such department and recommend a perma vision for its support and maintenance.

The following estimates for appropriations for the ensuing 1 are submitted:

Salaries	$15,000
Ordinary repairs	3,500
Equipment, etc., school of mines	3,500
Fuel and care of buildings	4,000
Library	5,000
Improvement of campus	1,500
Green house	600
Testing machine, mechanical department	800
Printing and advertising	1,000
Furniture, equipment and supplies, chemical laboratory building	25,000
New boiler	2,500
New gas holder	5,000

Respectfully submitted.

ALEXIS COPE,
Secretary.

Report of the President.

To the President of the Board of Trustees:

DEAR SIR: The president of the university respectfully submits the following report for the year ending November 15, 1889:

The death of Alfred H. Welsh, associate professor of English language and literature, July 26, 1889, deprived the university of a faithful teacher and an author of industry and promise. He was elected assistant in history and English in 1885, and, on the division of the department in 1887, he was placed at the head of the department of English, with the title of associate professor. His sudden death produced a profound impression on his colleagues and the students of the university.

George W. Knight, professor of history and political science, desiring to pursue historical and economical studies abroad, has been granted a leave of absence for the year, and is now at the university of Halle.

Alice K. Williams, associate professor of the French language and literature, is prosecuting her studies in France under a similar leave of absence.

Appointments to the vacancies thus created have been made as follows: James Chalmers, Ph. D., has been appointed to the chair of English language and literature, with the rank of associate professor. He graduated at Eureka college, Illinois, and studied at the universities of Michigan and Edinburgh. He was for some time a county superintendent of schools in Michigan, and for two years prior to his election here was professor of philosophy at Eureka college. John W. Queen, Ph. D., has been appointed to the chair of history and political science. He is a graduate of Princeton, and completed a post-graduate course in political science at the same institution. Last year he taught Greek and political science at the Pennsylvania military academy. Benjamin L. Bowen, Ph. D., has been appointed to the chair of French language and literature. He graduated at Rochester university and took the degree of Ph. D. in the Romance languages at Johns Hopkins university. Last year he had charge of the instruction in French at Bowdoin college. All of these appointments are very satisfactory.

Charles P. Sigerfoos, who has served for two years as student assistant in the department of zoology and comparative anatomy, was advanced at the close of the last year to the position of regular assistant. His services are extremely valuable. Charles W. Mesloh, who acted as student-assistant in German last year, has also been made a regular assistant. He is a competent and successful teacher. F. L. Olcott Wadsworth, after a brilliant record in student work, ending in the attainment of three baccalaureate degrees, was appointed assistant in the department of physics; but he has since resigned to accept a scholarship in Clark university. Joseph R. Taylor, B. A., of the class of 1887, has been appointed assistant in drawing, a position for which he possesses superior qualifications, and in which his services are highly appreciated. By permission of the board of trustees he gives instruction also in painting and crayon work. During the last year William F. Lavery was appointed assistant in veterinary medicine, and he has been reappointed for the present year. He is doing efficient work.

The number of students in attendance within the last collegiate year, was 427, representing 12 states, Japan and the Sandwich Islands.

Graduates		15
Seniors	22	
Juniors	28	
Sophomores	48	
Freshmen	69	
Special	22	189
Briefer courses —		
Agriculture (two years' course)	18	
Veterinary medicine	5	
Pharmacy	21	
Mining	14	58
Preparatory —		
Second year	82	
First year	74	
Irregular	9	165
Total in all classes		427

The distribution of the students in the four regular college classes by courses is shown in the following table:

	Totals.	B. A.	B. Ph.	B. Sc.	B. Ag.	C. E.	M. E.	E. M.
Seniors	22	7	4	4	2	2	3	....
Juniors	28	5	9	10	....	3	1	....
Sophomores	48	12	3	9	6	12	5	1
Freshmen	69	17	10	14	....	16	11	1
Totals	167	41	26	37	8	33	20	2

In the three general courses, that is, those leading to the degrees of bachelor of arts, bachelor of philosophy, and bachelor of science, there were 104 students; in the four-year technical courses, 63, and in the briefer technical courses, 58, making a total in the technical courses of 121.

The number of women in attendance within the year was 51.

Graduates		4
Seniors	5	
Juniors	6	
Sophomores	5	
Freshmen	10	
Special	7	33
Preparatory—		
Second year	9	
First year	9	
Irregular	3	21
Total		58

The number of degrees conferred at the last commencement was twenty-seven,—bachelor of arts, one; bachelor of philosophy, seven; bachelor of science, nine; civil engineer, one; mechanical engineer, two; mining engineer, two; doctor of veterinary medicine, one; graduate in pharmacy, two; master of science, one; and master of arts, one. The degree of master of science was conferred on Horace L. Wilgus, B. Sc., of the class of 1882, and that of master of arts on James A. Wilgus, B. A., of the class 1888 Both of these were given for work in history and political science. The whole number of graduate students pursuing study under the direction of the university was eleven.

The total enrollment for the present year at this date is 415, against 386 at the corresponding date last year and 338 at the corresponding date two years ago.

There have been but few changes in the courses of study. The course for the degree of doctor of veterinary medicine has been reduced to three years, and confined more closely to studies that pertain directly to the profession. It is unfortunate that so few are willing to spend even the period of three years to educate themselves for a profession of so much importance. There is no disposition to lower our standard to a level that would sacrifice the interests of the veterinary students and the dignity of the university; yet it has been thought wise not to insist on a standard so high that very few of those whom the course of instruction is designed to benefit will avail themselves of it. Our aim has been to prescribe a curriculum as extensive and thorough as is consistent with a practical adaptation to actual conditions; and the one recently adopted is much in advance of that which is taught in most veterinary schools.

At the beginning of the present collegiate year a full course in electrical engineering was offered. It is based on that in mechanical engineering with such deviations as the specific ends in view require. The differences consist mainly in the substitution of additional study in physics and a year of laboratory work in electrical engineering for some of the more special branches of mechanical engineering. Many students have already entered on the course, and it will no doubt be as much sought after as any that the university offers.

In our plans for the future development of the university there are three subjects which in my judgment, should hold a prominent place. One of these is the creation of a chair of pedagogics. Many of the students adopt teaching as their profession. Many more spend some years in teaching before they enter upon their chosen calling. To such students and to the schools that will be under their charge, a course of systematic instruction in the science and the art of teaching would be of great advantage. It would serve also to bring the university into close and beneficial relations with the public schools. It is eminently fit that the university of the state should contribute in this direct way to the system of education founded and supported by the state

A second object to be kept in view is a chair of social science. On this point I quote from my report of November, 1883:

"There should be in the university a chair of political and social science. The questions falling within the province of these sciences are of the first concern, and they are rapidly pressing to the front. As a people we can not refuse to consider them, and if we fail to consider them wisely, our failure will involve us in the most serious consequences. A state university, above all others, ought to furnish the means for the most intelligent and extensive study of politics and society. It ought to prepare men for the wisest performance of the duties, and the wisest exercise of the rights of citizenship. It ought to prepare men who as jurists, as legislators, as administrators of government, as private citizens enjoying the privileges of freemen, will have a firm grasp of those principles which underlie our political and social institutions, and will be able to meet, with sound arguments and just counsels, the crises in our public affairs which the future is certain to bring."

The third subject referred to is an extension of the work in philosophy. Our present instruction in this department is meager and elementary and is given by a teacher whose time and energy are of necessity given mainly to duties of a widely different kind. The scope of the work open to students needs to be much enlarged, and the teacher should have freedom for wide reading and reflection. The survey of a vast field is necessary to qualify him for giving wise direction to the studies of his classes. There is no discipline better adapted than that of philosophy to elevate and invigorate the mind, to beget exalted yet just and sober views of life, or to enkindle enthusiasm in intellectual pursuits.

By a regulation adopted a few years since the attendance in college classes was left to the management of the several professors. It has been found that, while this plan is on the whole a good one, it was in some respects defective. A student might, from sickness or by silent withdrawal from the university, disappear altogether from his classes, and yet the fact remain entirely unknown at the office. Or a student might, by a shrewd distribution of absences among his various classes, evade a large part of his work for several weeks in succession. To correct these defects it is now provided that all absences, excused and unexcused, shall be reported to the president's office weekly. An attendance record has been provided in which the names of all students are alphabetically arranged, and the absences of each week are entered; so that it can be seen at a glance what each student's attendance has been from the beginning of the year.

Perhaps no subject of so small magnitude has been so difficult to deal with as that of attendance at chapel. Different methods have been adopted from time to time, but none was satisfactory. Near the close of last year a committee was appointed by the faculty to consider the subject and report a plan. The result is that members of the senior class now act as monitors. The voluntary assumption of this duty by the class at the request of the faculty was an act of loyalty to the interests of the university which is worthy of strong commendation. The new plan is fairly inaugurated and we hope that it will prove to be the final solution of the problem.

The most notable event of the year was the burning of the chemical building. The fire occurred on the morning of February 12. It was discovered by the night watchman a few minutes after three o'clock. An alarm was given as soon as possible; but the hose wagons, having a long distance to run, were so late in arriving, and met with so much delay in making connection with the water pipes, that the flames had made great progress before anything was done to arrest them. Even then the pressure was for some time so feeble that but little effect was produced. In two hours the building and its contents were almost wholly destroyed.

The immediate effect of the disaster was the suspension of all the laboratory work that had been carried on in the building. Three departments were thus disabled—general chemistry, agricultural chemistry, and mining and metallurgy. Class work, however, was resumed almost without interruption in those rooms that could be spared for the purpose an hour or two each day. A spirit of accommodation was shown on every hand. The departments of general chemistry and of mining and metallurgy were transferred to the main building, that of agricultural chemistry was provided for in the botanical building, while a lecture room for the veterinary department was generously offered by the agricultural experiment station. The legislature afforded prompt relief by an appropriation of five thousand dollars for the equipment of temporary laboratories. With the facilities thus secured we were soon able to resume the work of the laboratories. Yet, after all that could be done, these departments labor under serious disadvantages, and have also somewhat impeded the work of other departments.

But every drawback has been encountered cheerfully, and all have shown a disposition to make the best of the situation This has been done the more easily from the fact that we have been able to look forward to an early deliverance. The appropriation of forty thousand dollars, made by the legislature, to replace the chemical building, has been so judiciously applied that we shall soon have accommodations much superior to those which we have lost. The space will be ample for the present demands it is intended to supply; the arrangement will, in almost every respect, be convenient; and the appliances, so far as they are provided for, will surpass the former ones.

These appliances, however, are but a small part of what will be required. Indeed, they are only such as it was necessary to include in the construction of the building itself. The means to provide desks and other furniture, shelving, gas and water fittings, and considerable quantities of chemicals and glassware, are still to be procured. For these objects not less than twenty thousand dollars will be required.

The building for instruction in electrical engineering, for which an appropriation of ten thousand dollars was made by the legislature, is now finished. It is conveniently located, well arranged, and liberally supplied with the best forms of electrical apparatus. The head of the department has been successful in obtaining donations from various manufacturers to the value of about six thousand dollars. A detailed statement of these gifts will be found in his report. It may safely be said, I think, that our present facilities for instruction in electricity are equaled by few institutions of learning.

The course of Sunday lectures delivered before the university during the winter was well attended and highly appreciated. The lecturers were men of ability and reputation, and the discourses were of a high order. It is expected that the course to be given during the coming season will not be less able or less interesting.

The pleasant relations between the university and the agricultural experiment station continue, and there is a manifest spirit of mutual accommodation and helpfulness.

The reports of the various departments are herewith submitted. They contain the required information respecting the number of students enrolled in the several classes, together with a statement of the condition and wants of the departments. The wants are especially worthy of your consideration. The progressive spirit of modern education, leading to the introduction of new subjects into the curricula of the higher institutions and the development of new methods of instruction, has rendered necessary much larger and more varied collections of means and appliances than were formerly required. In order, therefore, that the university may keep pace with the constantly increasing demands upon it, constant additions must be made to its equipment.

The sum paid in salaries has increased within the year, and it should, in justice, be still further increased in the immediate future. I would recommend, therefore, that the sum asked from the legislature for this purpose be again fixed at fifteen thousand dollars instead of ten thousand.

The appropriation for the library has been so small that it does little more than support the library in its present condition. I would call your attention to the report of the librarian and to the urgent requests for books in several of the department reports. Five thousand dollars should be regarded as the minimum amount for the next year.

The other objects put forward last year in the requests for legislative aid will, I doubt not, commend themselves again to your favorable consideration. A fire-proof building for the geological museum, which shall also furnish temporary accommodations for the library; a drill hall and armory, which shall also serve as a place for large assemblies on such occasions as university day and commencement, a building containing lecture-rooms, hospital, dispensary, etc., for the department of veterinary medicine, and a manual training school, are among the most prominent necessities of the institution. All but one of them have been presented in my former reports, and it is perhaps unnecessary to repeat the arguments by which they were urged. Every year the need of these additional buildings becomes more imperative.

The veterinary department presents its request for a building for the first time. Its present accommodations are not only inadequate, but they are scattered and inconvenient. The cost of a building that would provide for it suitably, would be six or eight thousand dollars.

I would recommend that the request for an appropriation to purchase a new testing machine for the mechanical department be renewed. Also the request for an appropriation of three thousand dollars for the purchase of astronomical instruments

The great desideratum, so often advocated and so cordially agreed on, is still unsupplied. I mean a regular and permanent provision for the university, which shall be commensurate with the requirements of a great institution of learning. Other states, realizing the advantage of this policy, have made such provision. Besides the states mentioned in my former reports, Kansas now provides "that there shall be made for the fiscal year ending June 30, 1891, and annually thereafter, * * a sufficient levy * * to create a fund of seventy-five thousand dollars, which shall be levied and collected in the same manner as are other taxes. and which shall be known as 'the current university fund.'" Kentucky also has for several years given to its state college one-half of one per cent. on each one hundred dollars of the grand tax duplicate.

It seems that it should not be difficult to persuade the legislature of a great, wealthy, and enlightened state like our own, to adopt a policy that is at once so wise and so expedient. One hundred thousand dollars a year would be a burden unfelt by the state and would make her a hundred-fold return in intellectual and moral good. May we not commit the interests of the university to the intelligent care of the state, with confidence that she will give generously from her bounty to broaden its foundations and develop its power?

WILLIAM H. SCOTT.

November 1, 1889.

Department Reports.

AGRICULTURE.

To the President of the University:

Dear Sir: The annual report of the Department of Agriculture, for the year ending June 19, 1889, is respectfully submitted:

The number of students in the agricultural classes for the three terms of the past year, averaged twenty-nine. In view of the fact that a free scholarship, for the short agricultural course had been offered to every county agricultural society in the state, a much larger attendance of agricultural students might have been expected. More than seventy of the county agricultural societies have not yet availed themselves of this liberal offer. The number of agricultural students who registered at the beginning of the present year, is thirty-one.

The short agricultural course of two years appears to be more acceptable to young farmers than the longer and more complete course. A large majority of agricultural students are taking the two years' course.

Agricultural students find employment at the Experiment Station, and the compensation received for their work enables many to pay their expenses wholly or in part. This labor also improves the practical skill of students, and makes them familiar with methods of experimental investigation.

The Kirtland Natural History Society, organized at the university by agricultural and veterinary students, continues to be well sustained, and holds weekly meetings which are both interesting and profitable.

Very respectfully,

N. S. Townshend,
Professor of Agriculture.

Ohio State University, October 18, 1889.

AGRICULTURAL CHEMISTRY.

To the President of the University:

Sir: The undersigned begs leave to offer the following report of the department of agricultural chemistry, for the year ending June 19, 1889:

The total enrollment of students in this department during the year was as follows

First year—
Fall term
Winter term
Spring term

Sophomore year—
Fall term
Winter term
Spring term

The apparatus and chemicals lost in the fire of the ch
placed out of the special appropriation. The work of the wi
Professor Kauffman's laboratory. For the spring term, the
the museum of the horticultural building, where they still re
present class.

Very respectfully,

Professor

Ohio State University, October, 1889.

BOTANY AND HORTICULTU

To the President of the University:

Dear Sir: I have the honor to submit herewith the an
ment of botany and horticulture for the college year ending J

The total enrollment of students in this department for t

The following tabulated statement presents the subjects t
students in each class:

Fall Term.

Advanced structural botany
Economic and applied botany
Horticulture (large fruits)
Arboriculture and forestry
Special botany (laboratory and field)

Winter Term.

Cryptogamic botany
Vegetable histology and physiology
Special botany (laboratory)

Spring Term.

Structural and systematic botany
Advanced structural botany
Horticulture (small fruits)
Landscape gardening and floriculture
Special botany
Total enrollment in all classes
Number of different students

As in previous years, the method of teaching has been in the form of lectures, laboratory practice and field work. The aim is to train as well as to teach, to show methods as well as to impart knowledge. Text-books are used mainly for reference, and the greater portion of the time spent in the class-room is given to the direct study of plants and their products. Experience has shown that this method develops the faculty of observation, trains the descriptive powers, and teaches the student to examine and investigate things for himself.

I have called attention in previous reports to the heavy and exacting nature of my work during the spring term. It is more than one instructor ought to undertake, so I renew my request for an assistant during that portion of the year. For the past year Mr. Moses Craig, a member of the senior class, who had made a special study of botany, rendered valuable service in the department.

The appropriation of two hundred and fifty dollars made in June last has been partially expended in collecting and mounting specimens for the general herbarium. Enough remains to purchase two good microscopes and some minor appliances for the further equipment of the laboratory.

The Experiment Station continues to be a valuable adjunct to the department as a means of illustration and training. I wish to express my entire satisfaction with the relation of the station to this department, and my recognition of the valuable volunteer services of Mr. W. J. Green, C. M. Weed and other officers, in the way of practical instruction to the students in horticulture.

The calls to attend horticultural meetings and farmers' institutes have been more numerous and urgent the past year than ever before. I like to attend and take part in such meetings whenever I can do so without neglecting my duties at the university. The vacation periods and Saturdays are largely occupied in this way.

During the year I have identified and described many plants that have been forwarded to the department, and have had an extensive and varied correspondence on various horticultural and agricultural topics. Some of the inquiries and answers being of general public interest, have been published in the agricultural journals of the state.

Respectfully submitted.

WILLIAM R. LAZENBY,
Professor of Botany and Horticulture.

Ohio State University, October, 1889.

DEPARTMENT OF CHEMISTRY.

To the President of the University:

DEAR SIR: I have the honor to present this, my sixteenth annual report of the department of general and applied chemistry.

There were enrolled in the elementary chemistry during the fall and winter terms 96, and in the spring term 53; in analytical chemistry, 19; and in the classes of organic analysis and toxicology, 5; making in all 170, not taking into account double enrollments.

The work done before the fire of February 12 was fully up to the average of former years, but it will readily be understood that students and teachers alike labored for the rest of the year under great disadvantage.

Through the kindness of Professor Thomas, a lecture-room was provided for the elementary class, and Professor Kellicott has placed us under continued obligations for the use of his large basement room for a temporary laboratory. In spite of many inconveniences and an almost total lack of the minor conveniences of a working laboratory, the advanced students have accomplished a creditable amoun part deserve praise for their cheerful acceptance of the situat the best of it.

The special students in the pharmacy course were taught b

As many of the books in the old library were mine, I shal books than have been furnished the department out of the fun at the time of the fire. So, also, I shall need a new equipme No one can doubt that this should be upon a much more gene the demands that are made upon us are larger and with a prou

A large part of our former collections was obtained by gif sume that other donations of the same kind will come to u mind that these were the accumulations of sixteen years, and th by immediate purchase all that are required for class demo gone by when we can afford to wait for donations. Neverth able to acknowledge from the Standard Oil Co. a splendid suit petroleum refining: from the Xenia Powder Co. an excellent s materials; from Whitall, Tatum & Co. specimens in glass ma Rubber Co. raw caoutchouc, and from the N. Y. Packing and specimens of manufactured rubber; from the Franklin Type F moulds and casts; from the Ohio Steel Co., of Cleveland, a la trating the manufacture of steel; from the Brush Electric secondary battery; and from the Julius J. Wood Starch Co. have also promises of other specimens and hope to obtai collections.

Meanwhile the department is laboring under many and se no one but a teacher of chemistry can fully appreciate.

I have had, for the past year, as assistant, Mr. Frederick the classes that come to us from the pharmacy course.

Respectfully submitted.

Ohio State University, October, 1889.

CIVIL ENGINEERING.

To the President of the University:

DEAR SIR: I have the honor to present my annual rep civil engineering for the year ending June 19, 1889.

The enrollment for the year was as follows:

Fall term—Land surveying, 10; topographical surveying bridge designing, 1; higher surveying, 1.

Winter term—Field measurements, 15; stereotomy, 5; ci drawing, 1.

Spring term—Railroad surveying, 6; technical drawing, engineering, 5; plans and specifications, 1.

Total enrollment, 66.

The number of different students in the department duri

At the end of the year one student had finished the wor given the degree of civil engineer.

Near the end of the spring term I was permitted to take my class in railroad surveying down the Hocking Valley for one week's practice. The class made surveys, etc., of a railroad from New Straitsville to Shawnee, a distance of nearly three miles, and over very rough ground.

The practice thus obtained was of great benefit to the class, and has enabled several members to secure good positions on surveying corps.

I hope that hereafter this class, sophomore surveying, may be granted such a week's practice. Many other schools make such work a requirement for graduation.

The equipment of the department has been increased by a set of 25 large photographs of bridges, etc., along the C. S. R'y, and also a few small office and field instruments.

Cases have been built in one of the rooms for all instruments and models belonging to the department. I can now keep them in better order and also display them safely during the vacations.

A number of thesis drawings that were framed for the centennial exhibition last year, now adorn the walls of the rooms and thus show to visitors and students what former students have done, and also serve as models for the present students.

The need of a better transit is felt more and more every year and I hope that I may be allowed to secure it this year.

The department should have many more models, photographs and drawings for use in stereotomy and civil engineering classes. Those now owned have proved of great benefit to the classes. The students can better understand their work, and can cover more ground in the given time.

I wish to call your attention to the great deficiency of engineering books in the library and would earnestly solicit your influence in behalf of the department.

Very respectfully submitted.

C. N. Brown,
Associate Professor of Civil Engineering.

DRAWING.

To the President of the University:

Dear Sir: I respectfully submit the following report of the department of drawing for the year ending June, 1889:

The number of students enrolled in the several classes was 211, distributed as follows:

Fall term—		
Freehand drawing, freshman	43	
" " sophomore	30	
Projection "	16	
Special "	1	
	—	90
Winter term—		
Freehand drawing	33	
Descriptive geometry	15	
Special drawing	1	
	—	49

Spring term—		
Freehand drawing	28	
Shades, shadows and perspective	9	
Lettering	33	
Special drawing	2	
	—	72
		211

In my report for the year ending June, 1887, it was suggested that freehand drawing be given a place in the freshman year of the engineering courses. This was done last year by assigning it to the fall term. Lettering, which had been in the civil engineering course only, was also added to the same courses in the spring term of the same year.

It will be seen from the above enrollment, which does not account for the time given to the mechanical laboratory and machine designing and drawing, that the work required is more than one instructor can successfully carry, as the instruction must be for the most part individual.

This crowded condition will be relieved during the ensuing year through the generous offer of Mr. J. R. Taylor; and it is sincerely hoped that his work will be made more remunerative in the immediate future. He comes well qualified for the work and well acquainted with the university and the department, and it would give me pleasure to have him as a permanent co-worker.

The time allotted to the subject of drawing is far from the amount necessary for the results that should be attained. It does not receive the recognition it deserves. Being an universal language whose educational value is incalculable in technical and scientific work, it should not be handicapped by scant allowance of time.

I would suggest that freehand drawing be continued for at least one hour a week, during the winter term of the freshman year of the engineering courses. Also, that one hour a week be given, during the same time, to instrumental drawing. This would lay the foundation for all the mechanical drawing of the courses, by giving the student facility in the care and manipulation of drawing instruments. As it is at present, this time must be taken from the short time allowed projection drawing.

Descriptive geometry should have at least five hours a week instead of three as at present. Three for lectures, recitations and blackboard demonstrations, and two for the careful delineation of the problems with instruments.

Shades, shadows and perspective is given for three hours a week, whereas the subject of perspective alone needs more time than that.

Sophomore freehand drawing of the arts, philosophy and science courses, has, in addition to its short allowance of time, a poor distribution. If the time is to remain the same, more could be accomplished by concentrating it into one term; that is, make it a three-hour study for one term instead of a one-hour study for three terms. Putting all the time into the winter term would relieve the fall and the spring terms, which are, with the present arrangement, crowded more than the winter term. Some provision should be made whereby students could pursue the subject further than is now possible.

During last spring term a class was formed for work in out-door sketching by such students as chose to take up the work voluntarily. The class numbered seventeen, and, from the results obtained and the interest taken in the work, I feel like making it a permanent feature of the work in drawing. Saturday afternoons were chosen for the work.

The drawing room can be improved in some respects by running a partition north and south nearly across the room, and by putting two large sky-lights in the south side of the room. The partition would obviate all interference of mechanical and freehand drawing one with the other, and provide the department with that very necessary adjunct —a blackboard of sufficient size. At present, when blackboard accommodations are needed, it is necessary to secure the recitation room of some other department. The skylights would make it possible to use all parts of the room at all times, which can not be done on gloomy days with the present window arrangement.

The needs of the department continue, for freehand drawing copies are badly needed, the old ones being nearly worn out by the necessary usage in class work, and many of the copies should be duplicated for the reason that it is impossible to work many students from the same one at the same time. Plaster casts of simpler objects than the department now has, should be procured for the beginning of this work, and a case is needed to protect them properly when not in use. A few special models for descriptive geometry and shades, shadows and perspective, would facilitate the work in those subjects. To meet the above-stated needs I would ask an appropriation of $100.

Allow me to renew the request for the necessary facilities to give the students of the engineering courses instruction and practice in blue printing.

Letters and inquiries continue to be received in reference to the subject of architecture, which would prompt me to repeat the recommendation of my last report on that subject. I may add that an architect, to be proficient, should be a good engineer, as it is indispensably necessary that he should understand construction. We have all that pertains to good engineering well established, leaving not a great deal to be added in order to establish a course in architecture.

Jos. N. Bradford,
Assistant in Drawing.

Ohio State University, October, 1889.

ENGLISH LANGUAGE AND LITERATURE.

To the President of the University:

Dear Sir: I have the honor to submit the following report of the department of English language and literature for the year ending June, 1889, as gathered from the class records of my predecessor, Associate Professor Welsh:

The class in English (first preparatory) was divided,—one section, numbering 42 students, reciting during the fall term, and the second section, numbering 19, during the spring term. Welsh's Lessons in English was used as a text, and recitations were held daily.

The class in English composition (second preparatory) numbered 50 in the fall term, 46 in the winter term and 42 in the spring term. The class recited weekly throughout the year, using Welsh's English Composition as a text-book from the time of its publication. Brief essays on given subjects were presented by each student and discussed under the supervision of the instructor.

The class in English A (freshman rhetoric) numbered 90 in the fall term, 78 in the winter term, and 75 in the spring term. The class recited in two sections, each section reciting twice a week. Welsh's Complete Rhetoric was used as a text-book. Essays and other written exercises were called for during the winter and spring terms.

The class in English B (sophomore literature) numbered 19 in the fall term, 17 in the winter term and 16 in the spring term. The fall term was devoted to the grammatical and textual study of Anglo-Saxon, on the basis of March's text-books. The winter and spring terms were given to a cursory survey of English literature, with Welsh's Development of English Literature and Language as a text.

The class in English C (masterpiece course, junior elective) numbered 10 in the fall

term, 10 in the winter term and 6 in the spring term. The usu
sued throughout the year, the class studying critically the le
best writers, and embodying the results in essays and critiques
and discussed.

The class in rhetoricals (sophomore and junior) numbered
the winter term and 48 in the spring term. An essay and crit
each term, with weekly readings and discussions in class, com
course.

The above report on the work of the English department
complete as the data at my command enable me to make it.

Respectfully submitted.

J

Associate Professor of English L

Ohio State University, October, 1889.

FRENCH LANGUAGE AND LITER

To the President of the University:

Dear Sir: In the absence of any report left by Miss Wi
the work in the department of French for the year ending June
been substantially on the same basis as that of the year ending
the last annual report.

I take this occasion to add a word regarding the junior o
French, which is scheduled for the first time the present year.
stage of the study will contemplate a two-fold result: (1) A p
language, ability to speak it, with a thorough acquaintance wi
an introduction to its study historically, a knowledge of th
which have determined its development from the Latin.

Respectfully submitted.

Acting Associate Professor of French L

Ohio State University, October, 1889.

GERMAN LANGUAGE AND LITER

To the President of the University:

Dear Sir: The total enrollment of students in my depart
was as follows:

Junior German..
Scientific German...
Sophomore German..
Second preparatory...
First preparatory (sections)..

The increase in the number of students over last year was more than gratifying. Mr. Chas. W. Mesloh, who was appointed after the beginning of the term to assist me, taught two of the first preparatory sections the first two terms, and one the last term. The work was done very well.

A considerable addition was again made to the library of this department through the efforts of the German Library Association; but while the most serious wants have been supplied, much valuable and essential material is still lacking. I would suggest that a special appropriation for library purposes be given to this department, with which modern classics especially ought to be purchased.

Respectfully,

ERNST A. EGGERS,

Associate Professor of German Language and Literature.

Ohio State University, September 30, '89.

GEOLOGY.

To the President of the University:

DEAR SIR: I herewith present my report of the department of geology for the last acadamic year.

The number of students enrolled in the several classes of the department during the year was 98. These students were distributed among the classes as follows:

General geology, senior and junior classes, 2 terms	15
Economic geology, junior class, 1 term	2
Physical geography, 1st preparatory class, section A, 1 term	38
" " " " B, "	36
Elementary geology, short mining course, 1 term	7

Deducting students counted twice in this enumeration, the total number pursuing studies in my department was 97.

My work remains substantially the same as in previous years, except that a class in elementary geology has been provided in the winter term to meet the necessities of students in the short mining course. I am glad to do all that is in my power to advance the interests of this course and to ensure its success.

For the last five years the trustees have allowed me, with your consent, to withdraw from the university at the end of the winter term, in order to devote my entire time during the summer months to geological investigations. Most of this time has been spent in the service of the geological survey of Ohio. By the action of the last legislature, the survey was placed upon a permanent basis, and the direction of it for the next few years has been committed to me by the appointment of the governor. The work to be done in the interest of the survey can be carried on in conjunction with my professional duties in the university, if the trustees will allow me to maintain the arrangement of the last five years, referred to above. Will you be good enough to present this matter to the board and secure a favorable consideration for my request, if possible?

While it cannot be maintained that this arrangement is the best one possible for the department, by itself, I still believe that it may be made to serve the highest interests of the university for at least a few years.

During the last year, the equipment of the department has been increased by the purchase of two plaster models, prepared under the supervision of the Hydrographic

office of the navy department at Washington, and representi
knowledge as to the floors of the Atlantic ocean and of the Ca
have already proved themselves extremely serviceable to the
geology.

I desire to increase the facilities of instruction in my dep
still other geographical models. I may be able to make a spe
for a small outlay in this direction at its forthcoming meeting.

Very respectfully,

Ohio State University, November 1, 1889.

GREEK LANGUAGE AND LITER

To the President of the University:

Dear Sir: I have the honor to submit my annual repor
department of Greek for the college year ending June 19, 188

The membership of the various classes in the department
vided as follows:

Senior..
Junior.......... ....
Sophomore ....
Freshman............................ ....

Total...

The total represents a considerable increase in the num
man class, in particular, being much the largest in the history

The results of the year's work in attendance and scholar
course as outlined in the catalogue of last year was followed,
Aristophanes and the *Antigone* of Sophocles, were substituted
and Pindar's Triumphal Odes in the winter and spring terms

The course of lectures on the history of ancient art, offe
tive in the senior year of the course in arts, was not given d
offered to the present senior class: and it is my expectation
the lectures during the spring term as to include at least a su
modern schools of architecture and sculpture.

It is obvious that any such work as this must be crippl
absence of a museum of art and archaeology. What little m
its utmost extent, and is painfully suggestive of what should
The immense advance made in classical archaeology during
recognition by an institution which prides itself on being
ments in general are so admirably equipped with apparatus.

Very respectfully,

Professor of the Greek

Ohio State University, October, 1889.

HISTORY AND POLITICAL SCIENCE.

To the President of the University:

SIR: I have the honor to submit the following report of the department of history and political science for the academic year ending June 19, 1889. The enrollment in the various classes was as follows:

	1st term.	2d term.	3d term.
HISTORY—			
History B (European)	26	23	22
History C (summary for advanced investigation)	8	8	7
Constitutional and political history of United States	29	25	26
POLITICAL SCIENCE—			
Political economy	20	19	19
International law and municipal government	5	5	5
Total in collegiate department	88	80	79
Preparatory—U. S. history (section A)	31	....	....
" " (section B)	....	24	....
" Civil government (section A)	....	30	....
" " " (section B)	....	....	36
Total, collegiate and preparatory	119	134	115
Corresponding totals, previous year	98	95	105

Counting the members of each class but once for the year (and not for each term) the total enrollment was 213, against 182 in the year 1887–8, 188 in 1886–7, and 122 in 1885–6. A gratifying feature of this increase in the enrollment is that the percentage of increase is greatest in the collegiate classes, where the enrollment was 92 for the year just closed, against 42 three years ago. As the students in the collegiate classes in history and political science are mainly seniors or juniors, these figures would seem to show that the number of students who remain at the university till their junior or senior year is increasing, since the above mentioned gain can hardly be wholly due to the fact that a larger percentage of advanced students are electing work in this department than formerly.

The amount and character of the work done by the collegiate students in this department was, on the whole, more satisfactory than during any previous year since my connection with the university. The investigations carried on by the students in the historical seminary (History C), and several of the papers and theses resulting therefrom were more successful and scholarly than those of previous years. Some of the subjects investigated by means of original authorities and documents are given at the end of this report. The serious obstacle to the further development and extension of this most valuable kind of historical work is the lack of many books and public documents necessary for the thorough investigation by the students of important points in the political or industrial history of the United States.

The new elective in international law (two terms), and municipal government (one term), offered in response to what seemed a proper demand for such a course was carried through as announced, and will, I trust, remain a part of the curriculum.

In the preparatory department the two classes in civil government and one of sections in United States history, recited to Mr. Wilgus four-fifths of the time, and myself one-fifth. The work was well handled by the classes, much of their interest and success being due to the careful instruction given by Mr. Wilgus.

I wish to take this opportunity to make acknowledgment to you and to the board of trustees for the leave of absence granted me for the purpose of studying in Germany. I trust that my future work in the department will thereby be made of greater service to the university and its students. I desire also to express my thanks for the appropriation placed in my hands for expenditure in Europe for books and much needed equipment for the department.

Very respectfully,

GEO. W. KNIGHT,
Professor of History and Political Science.

Ohio State University, June, 1889.

PARTIAL LIST OF SUBJECTS INVESTIGATED BY STUDENTS IN THE SEMINARY COURSE.

Following is a list of a few of the subjects investigated by members of the course known as History C. Each student was assigned a separate subject, and his work for the term consisted in a careful investigation of public documents, congressional action and debates, official reports, etc., as well as historical treatises bearing on his subject. Once a week the class was assembled, and each member reported orally the nature and results of the previous week's investigation, and at the end of the term embodied the completed investigation in a written paper of from thirty to one hundred pages.

1. History of the Movements toward the Annexation of Cuba and San Domingo to the United States.
2. History of "Direct Tax" Legislation by the United States government.
3. The Rise, Principles and Decadence of the Whig Party.
4. A Study of Cooperation in the United States.
5. History of the Fisheries Question.
6. The Duties of the Private Citizen in a Republic.
7. History of the Naturalization Question in the United States, with Special Reference to Congressional Action thereon.
8. Historical View of the Changes in Electoral Qualifications in the Various States, with an Examination of the Causes.
9. The Veto Power of the President. Its Origin, Intent and Exercise.
10. History of the Chinese Question in the United States, with Special Reference to Diplomatic and Congressional Action.

LATIN LANGUAGE AND LITERATURE.

To the President of the University:

DEAR SIR: The following report of the department of Latin for the year ending June 19, 1889, is herewith presented:

The number of students enrolled in the various classes in the department was:

First preparatory, 49;
Second preparatory, 31;
Freshman, 27;

Sophomore, 16;
Junior, 16;
Total enrollment, 139.

The considerable increase in the attendance of the first preparatory class was largely due to the large entering class in pharmacy, and should not be understood as betokening a like increase of numbers in the succeeding years of the Latin course.

Mr. J. A. Wilgus had charge of the instruction of the first preparatory class, and with the exception of one exercise a week, of the work of the second preparatory class. In both good results were secured by his zealous and well-directed service.

By the transfer of the second preparatory class to Mr. Wilgus, I was enabled to offer an elective course in Latin of three hours a week, open to seniors, which was taken by one advanced student.

It is not probable that such a course will at any time attract more than a very few persons, however helpful it may prove to those who elect it.

It gives me pleasure to report that the good results of the policy of raising the standard of admission in Latin now begin to be plainly visible in the better scholarship of those members of the classes who have passed through our preparatory department.

Such students on reaching the freshman year compare well with those who come to the university from the four-year courses of the better high schools of the state.

The equipment of the department has been materially improved by the addition of several wall maps, photographs and other representations of ancient life.

I trust that it will not be deemed improper for me to express here my sense of the special value to all students in the higher classes of the Latin department, of the course in ancient art, given by the professor of Greek.

Very respectfully yours,

S. C. Derby,
Professor of the Latin Language and Literature.

Ohio State University, October, 1889.

MATHEMATICS AND ASTRONOMY.

To the President of the University:

Dear Sir: I present herewith my report in the department of mathematics and astronomy for the year ending June 19, 1889.

The work has been carried on by Prof. Chas. E. Kilbourne, Ass't Prof. Geo. W. McCoard and myself. The following summary will show the classes taught and the number of students enrolled:

Fall Term.

First preparatory—Algebra, Kilbourne, section A	38
" " " " " B	31
Second " Geometry, McCoard, section A	30
" " " " " B	30
" " " " " C	22
Freshman—Analytical and Spherical Trigonometry, Bohannan, section A	23
" " " " McCoard, " B	27
Sophomore—Chas. Smith's Conics, Bohannan	15

Junior—Least Squares and Mathematical Astronomy, Bohannan	3
" Solid Analytical Geometry and Potential Function, Bohannan	2
" Advanced Calculus, Bohannan	1
Total, fall term, 1888-89	221
" " 1887-88	210

Winter Term.

First preparatory—Algebra, Kilbourne, section A	38
" " " " " B	29
Second " Geometry, McCoard, " A	15
" " " " " B	27
" " " " " C	24
Freshman—Higher Algebra and Theory of Equations, Bohannan, sec. A	22
" " " " " McCoard, " B	38
Sophomore—Differential Calculus, Bohannan	10
Junior—Geodesy, Bohannan	1
" Mathematical Electricity (Mascart et Joubert), Bohannan	2
Total winter term, 1888-89	206
" " " 1887-88	175

Spring Term.

Second preparatory—Trigonometry for beginners, Kilbourne, section A	26
" " " " " " B	42
Freshman—Analytical Geometry, Bohannan, section A	27
" " " McCoard, " B	38
Sophomore—Integral Calculus, Bohannan	7
Junior—Mathematical Astronomy, Bohannan	3
Senior—Astronomy (non-mathematical), Bohannan	10
Total, spring term, 1888-89	153
" " " 1887-88	144
" enrollments, 1888-89	580
" " 1887-88	529
" " 1886-87	482
" number of students (no name counted twice), 1888-89	263
" " " " " " 1887-88	217
" " " " " " 1886-87	196

I would urgently recommend a readjustment of our course in mathematics, to make the work in single subjects continuous. As at present arranged, the summer vacation divides into two parts, the course in trigonometry, and likewise that in analytical geometry, while a brief course in geodesy (too brief to be of any great value), is thrust in between the fall term's and spring term's work in mathematical astronomy. To an easy advancement in mathematical studies, the accurate knowledge of all that has gone before is absolutely essential, and to this end the freshness of recent acquisition is most helpful. My experience is that no special facilities to enable the student to forget what he has once accomplished, are needed.

I would also advise the addition of another term's study in the calculus to the required work in the engineering courses. It is hardly possible to acquire in two terms a knowledge of this subject sufficiently extensive and accurate to enable the student to apply it readily in solving the difficult problems which meet the engineer, or to make easy his subsequent reading of advanced mathematical works.

May I not also ask that a special appropriation be made for the purchase of mathematical books for the library? During the earlier years in the history of the university the funds for this department were used in the purchase of ordinary American textbooks on elementary subjects, of little value then, and of none now. The total amount was not large, for we have only 90 mathematical books, all told, in the library; but of this small number 23 are antiquated American compilations on elementary algebra, geometry, etc. I believe that the needs of no other department in the university have been so poorly met. I ask, therefore, that a special appropriation of $500.00 may be made for the purchase of mathematical books of reference—the works of the great masters. Now that we have, every year, students doing advanced mathematical work, some considerable additions to our mathematical library seem to me absolutely essential to the growth and strength of this department.

When the course in practical astronomy was established, it was hoped that, at an early day, some astronomical apparatus and an observatory would be provided. Last year the trustees resolved to ask the legislature for $3,000 for the purchase of astronomical apparatus. The burning of the chemical laboratory made it necessary, unfortunately, to withdraw this request, so that the department is still without a single piece of apparatus with which measurements can be made, except a small sextant. While the general government fits out expeditions, at great expense, to make astronomical observations in all parts of the globe, and private individuals have spent vast sums in erecting, equipping and endowing observatories, our state of Ohio has spent a sum which probably does not exceed $500 for the advancement of the study of astronomy. For five years the annual reports of this department have been burdened with begging for a small appropriation for a modest observatory and a few pieces of first-class apparatus, and it is with some fear of becoming wearisome that I again call attention to the subject.

Very respectfully submitted.

R. D. BOHANNAN,
Professor of Mathematics and Astronomy.

Ohio State University, October, 1889.

MECHANICAL ENGINEERING.

To the President of the University:

DEAR SIR: I respectfully present herewith my report of the department of mechanical engineering for the year ending June, 1889.

First Term.

Students in analytical mechanics	8
" mechanism	6
" thermodynamics	5
" mechanical laboratory	12
" design drawing	4
Total	35

Second Term.

Students in mechanism	5
" prime movers	5
" analytical mechanics	6
" mechanical laboratory	24
Total	40

Third Term.

Students in machinery and millwork	5
" technical drawing	8
" mechanism	5
" strength of materials	8
" mechanical laboratory	12
Total	38

I was much gratified last winter to know that steps were taken to procure, by legislative appropriation, the testing machine asked for the department, and also that an appropriation was asked for a manual training school in connection with which it was thought, by reciprocal relation, relief could be had for the present overcrowded condition of the mechanical laboratory.

Because the appropriations asked were, for good reasons, changed in favor of one for another department of the university, to make reparation for a severe loss by fire, it is hoped that a renewed effort will this winter be made for securing them.

Very respectfully yours,

S. W. Robinson,
Professor of Mechanical Engineering.

Ohio State University, November 1, 1889.

MILITARY SCIENCE AND TACTICS.

To the President of the University:

Sir: I have the honor to submit the following report for the year ending June 19, 1889:

The number of cadets at the beginning of the college year was two hundred and sixty-two. A battalion of infantry of four companies, a battery of artillery and a signal detachment were organized, and instruction in infantry and artillery tactics, and in signaling, continued throughout the year.

All commissioned officers and sophomores were required to recite during a portion of the year in Hamilton's "Art of War," and all non-commissioned officers and freshmen received theoretical instruction in tactics, the captains acting as instructors. Cadet Lt.-Colonel Howard Hagler was placed in charge of the theoretical instruction in tactics, and Cadet-Major J. E. Thompson of the practical instruction. Owing to the mildness of the winter more drills than usual were had and less theoretical instruction.

The annual prize drill took place May 18, 1889. Captain Matile, Lieutenant Lovell, and Lieutenant Weaver, of the army, were the judges. The first prize, the prize sword, was won by company "C," Captain Edward Sigerfoos, and the second prize by company "D," Captain H. J. Whitacre. The drilling of all the companies was excellent. The prizes were presented to the winning companies by General Axline and the president of the university.

The discipline and spirit of the battalion were excellent throughout the year.

I respectfully renew my recommendation that an appropriation be obtained for a drill hall and armory.

In view of the fact that this university is a state institution, the battalion should, in my opinion, form part of the national guard of Ohio. This is the case in Iowa, and it has worked well. Two advantages would result from an arrangement of this kind—the cadets would receive the same allowances for uniforms, etc., as other members of the national guard, and would be required to go into camp for one week each year. In camp practical instruction in the duties of a soldier and in guard duty could be given. Satisfactory instruction in these duties cannot be given elsewhere. The total number of cadets for drill this year is two hundred and thirty.

Very respectfully, your obedient servant,

CHAS. E. KILBOURNE,
First Lieutenant Second Artillery,
Professor of Military Science and Tactics.

Ohio State University, October 7, 1889.

MINING AND METALLURGY.

To the President of the University:

DEAR SIR: I respectfully submit the following report on the mining department for the past year:

The classes taught were as follows: mine surveying, mine engineering, mine ventilation, each for one term; and in the short-mining course, mine surveying, mine ventilating, and mine operating. These classes were distinct from those of the long course, reciting at different hours, as the work had to be made more elementary and practical to meet the needs of the students taking it.

It was necessary also to organize a special three-term class in algebra for the short-mining students. This, with the foregoing subjects, was taught by Professor Sperr.

The aggregate number of students in the above classes was twenty-one.

The work under my personal charge was metallurgical laboratory, three terms, metallurgy, two terms, ore dressing, determinative mineralogy, general mineralogy, and assaying, each one term. The total number in these classes, excluding general mineralogy, was eighteen. The department records having been destroyed by fire, I am not able to give the exact number in that class, but it was about forty-five. Adding this to the others makes the total number of students in the department for the past year eighty-four.

There were two graduates in mining engineering in the class of '89.

Last year was the first trial of the short course in mining engineering. We made but a small beginning, having only three students who had been practical miners and properly represented the class that the course was designed to benefit. These men, however, found the work well adapted to them, and have greatly assisted in making the opportunities offered by the university known. Our course has been widely and very favorably noticed during the past year in a number of prominent technical and mining papers, This fall we have enrolled ten new students, all miners of some experience, and the second year of the experiment shows the course with between twelve and fifteen students.

A number of young men who have made inquiry about the course are making preparations to take it in the near future.

The work of Prof. Sperr in handling these classes has been most efficient. The men being of considerable age and many of them untrained in books, it demands particular ability to teach the subjects so as to reach the students properly.

I wish to acknowledge our obligation to the State Mine Inspector for aid and encouragement. The summer circulars of the department were distributed by him with his annual report all through the mining districts. I would also mention the courtesy of the "Colliery Engineer," and other papers, which have published extended notices of the school.

The department received a discouraging blow in the fire of last February, in which was destroyed the whole equipment; so that we were left absolutely without tools just as we were making a start. The generous and prompt action of the legislature in providing funds enabled us to arrange temporary quarters and in a few days resume work, though of course in a cramped and disabled condition. As to the needs of the department, having lost all our collections, maps, instruments, and models, it is necessary that funds be secured for their renewal. A part has been done, but even when we are put where we were, the growth of the school will necessitate still further additions. The most pressing of our wants are more field instruments and drawing facilities for the short mining students, and increased equipment in the metallurgical laboratory, so that more men may be accommodated.

We hope to obtain a collection of mining tools and machines from the manufactures, on loan, when the new building is ready for their reception. We should also have apparatus for experimental work in ventilation.

The library needs more books relating to mining and metallurgy, especially bound sets of the reports of various foreign societies devoted to these subjects. This, while not being perhaps properly a matter for this report, is of vital importance to our work.

Very respectfully,

N. W. LORD,

Professor of Mining and Metallurgy.

Ohio State University, October, 1889.

PHARMACY.

To the President of the University:

DEAR SIR: I submit herewith the report of the department of pharmacy for the year ending June, 1889.

The total number of students receiving instruction in this department during the year was twenty-four. Of this number twenty-two belonged to the department proper; one to the department of veterinary medicine, and one to the department of philosophy.

The one student from the department of philosophy took the work as elective by special permission, and his case suggests the propriety of adding work in this department to the elective list in the courses of arts and philosophy. It is work of great value to those intending to take up the study of medicine.

The room in the botanical building, which was fitted up for this department has been used both as lecture room and laboratory, and as it contains but sixteen desks, was overcrowded. After the destruction of the chemical laboratory by fire, this crowded condition was increased by an effort to accommodate Prof. Weber's department.

From this cause the work during the latter part of the year was seriously interrupted.

The department is in receipt of the leading pharmaceutical journals, for which thanks are due the publishers.

Yours respectfully,

Geo. B. Kauffman,
Associate Professor of Pharmacy.

Ohio State University, November 2, 1889.

PHYSICS.

To the President of the University:

Dear Sir: The following report of the department of physics, for the year ending June, 1889, is respectfully submitted:

The number of students enrolled in the several classes was as follows: In the second preparatory class, 84; in the sophomore class, 25; in the physical laboratory, 11; in the class in applied electricity, 5; total enrollment, 125. Deducting those counted twice, the number of individual students was 119.

The work in applied electricity was offered for the first time, and consisted of lectures twice a week through the year, on the theory of dynamo machinery, power transmission, the designing of machines, installation and operating of electric light and power plants, and allied topics. Two members of the class, Messrs. Wadsworth and Kirker, designed and built an alternating dynamo of the Mordey type, which remains as a part of our equipment.

The approppropriation of ten thousand dollars, made by the legislature at its last session for a building and equipment for electrical engineering work, enables us to furnish the much needed facilities for that work. At the request of the board of trustees, I spent the first two weeks in May in an attempt to secure a part of the equipment from manufacturers, and met with a kind and generous reception at their hands. The Okonite Wire Company, of New York, donated all the wire needed for our circuits, about three hundred dollars' worth. The Mather Electric Company, of Manchester, Conn., donated a dynamo for incandescent lighting of 200 lights capacity. This dynamo is also specially wound for convenient use as a constant potential motor. We owe this favor largely to the kindly interest of Professor Wm. A. Anthony, electrician of the Mather Company. We have been under obligation to the Thomson-Houston Company, of Boston, for several years for the arc light dynamos used in our work, and they added to the favors already granted a 200 light incandescent dynamo and accessories. The Brush Electric Company, of Cleveland, donated a five-horse power constant current motor, a 150 light incandescent dynamo and forty cells of storage battery. The Falls Rivet and Machine Company, of Cuyahoga Falls, Ohio, donated a friction clutch pulley of their excellent make. In prices of belting, shafting and other supplies, special and heavy discounts have been made. The market value of these donations is over six thousand dollars. No better evidence could be given of the donors' approval of our plans and work. The electrical laboratory is now practically completed. The machinery is being put in place, and we shall have the full use of the building and equipment during the

current year. We can now give an unusually full and co
in all the modern applications of electricity.

In this connection, it may not be amiss to state that ev
stay here gave special attention to electrical work, is no
company, and applications for others have been made, whicl
of course, prove true that those who avail themselves of o
still better prepared for such work, and give even better sat

After the burning of the chemical laboratory in Febru
to Professor Norton's class in general chemistry, and to Pro
alogy. The class-room for second preparatory physics was
for use as a chemical laboratory, the physics class being
The change was a welcome one to the members of the physi
as to crowd the former room beyond its capacity. The roon
room, and I hope some arrangement will be found possible w
necessity of returning to it.

The apparatus of the department is generally in good
for the electrical equipment were received, a large set of r
rangement and accuracy designed and adjusted by Profess
electric balance from Sir William Thomson with his certific

We need very much additions to the library on books
tific periodicals, and additions to the list of current periodi
lowances made for department expenditure are utterly inad
and I hope that a larger appropriation for the library may b
partments may be strengthened in this direction.

Very respectfully,

Ohio State University, October 8, 1889.

VETERINARY MEDICIN

To the President of the University:

SIR: I very respectfully submit the following report fo
fall term I had three five-hour classes, viz.: one in special
contagious diseases), attended by five students; one in surgi
also attended by five students, and one in veterinary clinics,
In the winter term I had the same classes, but they were atte
student. In the spring term I had, besides the daily clinic,
sic veterinary medicine and toxicology, attended by three st
in veterinary obstetrics, also attended by three students, a
bacteriology, which were attended each by three students.

Veterinary anatomy was not taught in the fall term. A
ter term, however, Mr. W. F. Lavery was appointed my assi
the hours assigned for anatomy, made up for the time lost in
was continued to the end of the year, consisted of five studen
tion in anatomy, seven old horses, one colt and one Jersey c
The horses and the colt were paid for, and the cow was giv
may here be allowed to say that Mr. Lavery, although yet a
himself not only a good anatomist, but also a very successful
tire satisfaction to every member of his class.

Notwithstanding the drawback to the veterinary department, caused by the fire in February last, which deprived the department not only of its class-room, but also of nearly every surgical instrument, and nearly all the available means of instruction, the department is at present, considering its inadequate accommodations, in a prosperous condition. The instruments destroyed by the fire have been more than replaced by others of a very superior quality, purchased in Germany and in this country, so that the department is now enabled to undertake any operation known to veterinary surgery. The two skeletons, one of a horse, and one of a cow, that were burned, are being replaced by two new ones, made by Messrs. Lavery and Brier. That of the horse is finished and serves as means of instruction, while that of the cow is nearly completed. Both of them are well put up, and as to anatomical accuracy, are superior to those that were burned.

Immediately after the fire a temporary class-room was offered by Mr. Thorne, the director of the Ohio Agricultural Experiment Station, in the station building. The kind offer, of course, was accepted, and since the fire my classes have met, and are yet meeting in the station building.

One student, the first one who completed the full veterinary course, as laid down in the catalogue, graduated last June, and now pursues postgraduate studies in the "Thieraerztliche Hochschule" (veterinary university) in Hannover, Germany. He expects to get a position as teacher of veterinary science.

This year four students are expected to graduate.

The most serious damage caused to the veterinary department by the fire was the effect it had upon our clinic. In the first place, it deprived us of nearly all our instruments and of our dispensary, and, secondly, it created a report among the people that the department had been completely crippled, and that the clinics had been abandoned. As the latter were not advertised, this report, which kept away a large number of patients, could not be contradicted.

At present the clinic is well attended, and I have no cause to complain about want of material; but our accommodations are entirely inadequate. We lack not only a suitable room in which we can examine patients in cold and bad weather, and in which we can perform operations, but also stable-room; and the part of the frame building now at our disposal is, at best, but poorly adapted to the comfort of the patients, their owners and the class. If my propositions, made a few weeks since to the honorable board of trustees, are carried out, we shall be able to take care of our patients, and to make them comfortable, which is necessary if we ask for the patronage of the public. Of course, it would be still better, if we could have a building exclusively for the veterinary department, constructed specially to meet its wants, but the cost of such a building would hardly be less than $5,000 or $6,000. Still, even then our equipment would not equal that of the University of Pennsylvania, or that of Harvard College, and would not approach the accommodations available in any of the European veterinary schools. Something, however, must be done.

The space in the anatomy building also, is insufficient, and it will be necessary to give up at least the whole building to the veterinary department. Mr. Lavery has this fall a class of six students, but during the winter term, when anatomical dissections are going on, at least ten students will have to work in that building, which will be impossible in the room now available. A carcass of a horse alone requires considerable space, and to give employment to ten persons, at least two carcasses, or parts of two carcasses, are needed. There is no lack of suitable material, because old horses can be obtained during the whole winter term at prices ranging from $2 to $5 a head. Last winter a larger number was offered than could be accepted.

Very respectfully,

H. J. Detmers,
Professor of Veterinary Surgery.

Ohio State University, October, 1889.

ZOOLOGY AND COMPARATIVE ANATOMY.

To the President of the University:

DEAR SIR: I have the honor to submit my second annual report.

During the last academic year the number of students in the department was on hundred; these were registered in the following classes: Physiology, fifty-six, thre hours a week for the year, and twenty-seven, five hours a week for the winter term comparative anatomy, four, three hours a week for the year; zoology, eight, five hours week for the year; and histology, five, five hours a week for the same time. The las class was very satisfactorily taught by Mr. C. P. Sigerfoos, who, the present term, as as sistant in the department, instructs the classes in histology and comparative anatomy.

The equipment of the histological tables has been improved since the previous re port, so that there are now twenty-four tables, each with a good microscope and all nec essary accessories for a complete course. Apparatus has been ordered for the equipmen of tables to accommodate twenty students in practical anatomy and physiology. Whe the room now used for a chemical laboratory is available for the purposes of a physic logical laboratory, the department will have facilities for properly doing the genera practical work in physiology now required of the sophomore class in this subject, an for special work designed for such as expect to teach the subject or to pursue hereafter course in medicine.

The need of fuller zoological collections referred to in my first report, are still se verely felt. Some progress, however, I am able to specify. The stuffed birds, for som years in the collection, have been put upon suitable stands; an insect collection ha been well commenced by the construction of a suitable case, and by the gatherin mounting and naming of many species of all orders; many species have been reared an their habits recorded. A convenient place for studying life-histories of insects an other animals is needed by the department. The number of fresh-water sponges on th shelves has been greatly increased by obtaining local species, and by the acquisition c those from distant points, collected by the late Henry Mills, of Buffalo, N. Y. Agai students and others have, in several instances, kindly remembered our needs, and hav contributed to the museum valuable specimens. I feel confident that a small annua appropriation to pay special collectors and to buy needful apparatus and rare specimen would result in solid growth of the museum.

The use of the room already referred to as a prospective physiological laborator will render the apartments assigned to this department fairly convenient for the instruc tion required. But the house, or part of one, now used for detaining animals to be use for dissection and demonstration, is inadequate. A new structure for this purpose, or new one for the use of the class in veterinary anatomy, so that the whole of the build ing now used for both, could be used for animals alone, would, it seems, be beneficial t both departments concerned.

Yours respectfully,

DAVID S. KELLICOTT,
Professor of Zoology and Comparative Anatomy.

Ohio State University, October 9, 1889.

THE LIBRARY.

To the President of the University:

SIR: The library council have the honor to present the following report upon the condition of the library for the academic year ending June 19, 1889:

It will not be improper to preface the report with a brief statement of the change in the administration of this department which has been made since the last report.

December 12, 1888, the faculty of the university appointed a committee of five of its members "to consider and report such suggestions for the regulation of the library as may seem expedient."

This committtee reported March 13, 1889, that they were of opinion that the best interests of the University would be furthered by a re-organization of the library upon the following basis:

1. The general care and oversight of the library shall be committed to a library council, consisting of the president, the librarian and four other members of the faculty, one from each of the schools—agriculture and veterinary medicine, engineering, science, arts and philosophy—who shall be nominated by the committees of their respective schools, and confirmed by the faculty, two of them to serve until the first regular meeting of the faculty in May, 1890, and two until the first regular meeting in May, 1891, and their successors to serve two years each.
2. It shall be the duty of the library council to make rules for the administration of the library, to direct the disbursement of its funds, to visit and inspect the library, and to make annually a written report upon the condition of the same to the faculty at its first regular meeting in May, and to the president on or before the first day of October.
3. The librarian shall have the care and custody of the library. It shall be his duty to superintend its internal administration, enforce its rules, conduct its correspondence, and disburse its funds under the direction of the library council.
4. These rules shall take effect from and after their adoption by the faculty.

This report was adopted by the faculty, and the following persons were chosen members of the library council: Professor Weber, for the school of agriculture and veterinary medicine; Professor Lord, for the school of engineering; Professor Thomas, for the school of science; and Professor Smith, for the school of arts and philosophy.

The long terms were allotted to Professors Thomas and Smith; the short ones to Professors Lord and Weber. After this action had received the approval of the board of trustees, the council proceeded to examine the condition and workings of the library, and to revise its rules. This work is substantially complete, and the regulations have been printed.

The balance of the income of the library was found hardly sufficient, even if used with close economy, to meet the small running expenses of the department, pay for outstanding orders, bind the periodicals, repair badly worn books, and pay the periodical bill for 1890. Hardly a book has been ordered for the past six months. The council regret that the lack of money has compelled them virtually to cease buying books, though every department needs them, and several departments must depend almost wholly upon the library for their proper equipment and apparatus, finding in it their laboratory and workshop.

The total number of books (exclusive of unbound pamphlets) found upon the catalogue of the library, June 19, 1889, was 8,976; if to this number the 337 volumes of the German library be added, there results a total of 9,313. From that number must be deducted at least 430 books which were destroyed by the burning of the chemical laboratory February 12, 1889.

The number of volumes added during the year was 902, of which 85 were obtained by binding periodicals, 465 were presented by various donors, 124 were bought to replace those destroyed by fire, their cost being charged to the special appropriation of $5,000, and 228 were purchased from the funds of the library.

Nearly $600 has already been expended in replacing the treatises on chemistry, mining, metallurgy and allied sciences. A further expenditure of $1,000 will be required to make good to the library its loss by the fire.

As in previous years, the reading-room has been used by a large number of students as a place for study. This use, by unduly crowding the room, has interfered somewhat with the proper work of the library, and must continue to do so until a reading-room can be provided large enough to accommodate all who wish for a quiet place of study without disturbing those who resort to the library for its more appropriate uses—reading and consultation of authorities.

The number of periodicals received was 100, of which 74 were obtained by subscription, 26 by gift. Of the former class 50 are regularly bound, and make one of the most important additions to our shelves; several others are well worth binding and would be thus preserved if the income of the library permitted.

It will be noticed that the library has received gifts from a large number of persons and corporations. Of these gifts, that of 337 volumes, presented by the German Library Association, an organization composed of citizens of Ohio, merits special mention, not less for the excellence of the books which it includes, than for their number. It makes a good nucleus for a collection of works that will adequately represent the vast field of German literature. Much credit is due to the professor of the German language and literature for his well-directed efforts to secure such books as are necessary to the proper prosecution of study in that department.

The most pressing needs of the library are a more spacious reading-room, greater security against loss by fire, and a larger fund for the purchase of books. It can be said without exaggeration that there is hardly one of the score of the departments represented in the university that could not profitably expend annually for several years the whole sum now divided among all the departments. Fully twice as many subjects are represented in our curriculum as ordinarily find place in a classical college of the same number of students. This makes it necessary to provide more books, and books of a more expensive character (inasmuch as they reach only a small number of readers), than those required for students in a curriculum of narrower scope. Again, the literature most useful to many of the departments, and indispensable for advanced work in any field, is found in sets of periodicals, transactions of learned societies, etc., which are costly and not readily found. The vast development within a few years of the means of gathering and disseminating information rapidly has made it necessary that new discoveries in any field of knowledge should be brought to the attention of its students at the earliest moment, and renders periodical literature of far greater relative importance than ever before. The council earnestly hope that the annual appropriation for the library will be commensurate with the importance of that department.

The assistant librarian, Miss Olive B. Jones, has rendered faithful and intelligent service and the council wish to express their satisfaction that the board of trustees have found it in their power to make the salary attached to this responsible position more nearly proportionate to its duties.

List of donors to the Ohio State University library for 1888-9. This list does not include donors of pamphlets not catalogued:

Names.	Volumes.
Am. Society Mechanical Engineers	1
Angell, Geo. T.	1
Ayer, Dr. J. C. & Co	1
Blakiston, P., Son & Co.	1
Branner, Prof. J. C.	1

Names.	Volumes.
Brown, Prof. C. N	1
California Dept. Agriculture	1
Cole, Frank T	1
Columbus Board of Education	1
Cornell University	1
Derby, Prof. S. C	2
Dominion of Canada	2
French Government	2
Georgia Dept. Agriculture	3
German Library Association	337
Harvard University	1
Hussey, Dr. C. G	1
Kelly, Family of Hon. A. H. Kelly	1
Leue, Hon. Adolf	1
Massachusetts Dept. Agriculture	1
Maxwell, S. D	1
McClure, Wm. J	1
Michigan Dept. Agriculture	1
Michigan University	1
Minnesota State University	1
Missouri Dept. Agriculture	2
Moler, Elias	1
National Tube Works Co	1
National Academy Sciences	2
New York Agricultural Society	1
New York, University of..	13
Norton, Prof. S. A	1
North Carolina Experiment Station	1
Ohio Archæological and Historical Society	1
Ohio Experiment Station	1
Ohio, State of	2
O. S. U. Trustees	1
O. S. U. Drawing Department	1
Orton, Dr. Edward	9
Pennsylvania State College	2
Price, Prof. Thos. R	1
Quebec, Province of	5
Royal Society of Canada	1
Scott, President W. H	1
Smith, J. C	1
Smithsonian Institution	3
United States Government	47
Yoder, S. S	1

PERIODICAL LIST FOR 1888–89.

Biologisches Centralblatt, Deutsche Rundschau, Mathematische Annalen, Landwirthshaftliche Versuchsstationen, Historische Zeitschrift, La Lumiere Electrique, Revue des deux Mondes, Chemical News, Electrician, Engineering, English Historical Review, Geological Magazine, Journal of Botany, Journal of the Chemical Society, Journal of Mental Science, Journal of the Statistical Society, Philosophical Magazine, Mind, The Observatory, Quarterly Journal of Geol. Society, Spectator, Veterinary Journal, Scientific American, Popular Science Monthly, American Machinist, Engineering and Mining Journal, Sanitary Engineer, Railroad Gazette, Bulletin of Torrey Botany Club, Breeders' Gazette, Rural New Yorker, American Dairyman, Magazine of

American History, The Nation, Edinburgh Review, Quarterly Review, Nineteenth Century, Contemporary Review, Fortnightly Review, Forum, North American Review, American Journal of Science and Art, Andover Review, American Journal of Philology, Science, Atlantic Monthly, Library Journal, American Journal of Mathematics, Nature, Journal of Economics, Journal of Franklin Institute, Botanical Gazette, Annals of Botany, Oest Zeitschift Wiss Vetinarkunde, Electrical Engineer, Annals of Mathematics, Public Opinion, Sidereal Messenger, Journal of Morphology, American Naturalist, Political Science Quarterly, Classical Review, Journal of Am. Archæological Society, Am. Journal of Psychology, Arbeiten aus d. Kais. Gesundheitsamte, Annalen der Chemie, Archiv. f. Thierheilkunde, Fliegende Blaetter, Jahresbericht Veterinar Medicin, Jahresbericht d. Fortschritte d. Agriculturchemie, Johns Hopkins University Studies, Jersey Bulletin, Jahresbericht d. Alterthümer-Wissenschaft.

Several of the periodicals in the list just given, were purchased by the departments for their special use, but are included with those of the general list in order to show more completely the resources of the university in the field of periodical literature.

The following periodicals were sent free: *American Economist, American Engineer, Bulletin of Wool Manufacturers, Christian-Register, Columbus Record, Dairy News, Farm and Fireside, Journal of Education, Lutheran Evangelist, Mechanical News, National Stockman, New York Weekly Witness, New York Pioneer, Open Court, Ohio Arch. and Hist. Quarterly, Our Day, R. R. and Engineering Journal, Sabbath Reading, Statesman, Sunday School Times, The Unitarian, Unitarian Review, Unity, Druggists' Circular, National Druggist, The Registered Pharmicist.*

Respectfully submitted.

S. C. DERBY, *Secretary.*

Ohio State University, October, 1889.

THE UNIVERSITY GROUNDS.

The President of the University:

DEAR SIR: I have the honor to submit the following annual report upon the condition and needs of the university grounds:

It is beginning to be generally recognized that few things are of greater value to a college or university than an inviting campus. It is one of the potent factors in securing the affectionate regard of students and alumni.

Fine grounds with beautiful landscape effects, well located and attractive buildings, groves, class-trees and other memorials, have not only an educating value for the student, but they develop a strong bond of attachment to the place.

Our university is the fortunate possessor of an unusually fine estate. The natural undulations of surface, the picturesque brook and peerless spring, the noble growth of primitive forest trees, form the ground-work for a beautiful park or landscape garden. Unfortunately the all too common mistake of erecting buildings as they have been required, without any general comprehensive plan, the location of each structure being governed by what seemed to be immediate needs, or the unmatured judgment of the hour, without considering the general effect, or harmony as regards the whole, has been made here as well as elsewhere. Some of our buildings are crowded together, while others are widely scattered in a sort of chaotic fashion. The result is, our campus cannot be made what it might have been had some comprehensive plan having in view the best possible location of each building been followed. There are, however, vast possibilities still in our university grounds, and I trust the time will come when they will be realized.

IMPROVEMENTS.

No marked improvements have been made in the grounds the past year, the appropriation being barely sufficient to keep them in fairly good order.

Among the minor improvements, one is worthy of notice. This is the successful transplanting of the evergreens, about 100 specimens, from the Meehan collection of trees and shrubs that was purchased one year ago. A small proportion of the deciduous trees and shrubs was also transplanted. It was deemed best to leave the remainder until they were in a better condition for removal. Some will be moved this fall and what are left will be transplanted next spring.

The walks and drives have been repaired at different points and are now in a measurably good condition.

The use of fresh gas-lime along the sides of some of the drives and upon portions of the brick walks, had a good effect in keeping down the weeds, and proved a great saving of labor.

ATHLETIC GROUNDS.

I have already urged the importance of furnishing our students with some means of physical development and recreation.

Many colleges have well equipped gymnasiums, and physicial culture, or at least some form of daily exercise, is now generally regarded as a requisite in the maintainance of a full measure of health.

Inasmuch as the university has no gymnasium a reasonable degree of encouragement should be given to wholesome, invigorating exercise. The surplus energy and animal spirits of our students might better be expended on the ball-grounds and tennis courts than in ways that are damaging equally to health, morals and the good name of the university. The new chemical building stands upon ground formerly occupied by two excellent tennis courts. In the construction of these courts about fifty dollars have been expended by the university tennis club. For this sum the courts could be replaced, and I respectively ask that the amount named be appropriated for this purpose.

The new courts can be located east and north of the chemical building, where they would prove neither a disturbing feature nor a disfigurement to the grounds.

Another fifty dollars would keep the ball-grounds in fairly good order, and this would not only add to the appearance of the campus, but would do something where much ought to be done for the interests of physical culture. I trust the university will soon be able to do more, but even now it should do no less.

ARBOR DAY.

This was duly celebrated by the students last spring, each class, from the first preparatory to the senior, planting one or more memorial trees. The simple exercises of arbor day participated in each year not only calls the attention of the students to the urgent necessity of planting and preserving our trees, but it gives them a direct interest in the work of beautifying and adorning the campus.

I am certain that many will linger more proudly and return more eagerly on account of the trees thus planted.

FUTURE IMPROVEMENTS.

The suggestions made in my last report have been given further study and I am more than convinced that they ought to be carried out at the earliest possible moment.

The straightening of the walk leading from the central entrance to the main building; the extension of the lake, and the laying out of a new drive along the brook, would add much to the appearance of the grounds. The improvements on Neil and Woodward avenues render necessary a new driveway to the entrance of the large dormitory, and this will be made this fall. The necessary driveways and walks will also be made to the new electrical building and the new chemical building as soon as they are completed.

ACKNOWLEDGMENTS.

I desire to bear testimony again to the faithful manner in which Mr. James Kelley and Mr Charles Roth perform their respective duties.

I also express my appreciation of the prompt response to every call for men and teams by the officers of the experiment station.

Respectfully submitted.

WILLIAM R. LAZENBY,
Superintendent of Grounds.

Ohio State University, Nov. 1889.

TREASURER'S REPORT.

COLUMBUS, OHIO, *November* 15, 1889.

To the Honorable THOS. A. COWGILL,
President Board of Trustees, O. S. U.:

SIR: I submit herewith my report for the fiscal year ending this 15th day of November, 1889.

Respectfully yours,

F. W. PRENTISS, *Treasurer.*

STATEMENT I.

Detailed Statement of Receipts by F. W. Prentiss, Treasurer, during Fiscal Year Ending 15th November, 1889.

Date.	Received from—	On acconnt of—	Amount.
1888.			
Nov. 16	Balance	As per my report 1887-8..................	$1,569 62
Dec. 1	Ohio State Treasury.	On account of interest on endowm't fund, due 1st Jan., 1889..............	5,000 00
	W. H. Scott..................	Sale of old paper..........................	7 75
13	Ohio State Treasury......	On account of interest on endowm't fund, due 1st Jan., 1889..............	5,000 00
24	Ohio State Treasury.......	Balance interest on endowment fund due 1st Jan., 1889......................	6,135 24
1889.			
Feb'y 9	Ohio State Treasury.......	On account of interest on endowm't fund, due 1st July, 1889................	3,000 00
21	A. J. Nixon..................	Lot No. 8, Adams Co., Va. Mil. Lands..	15 00
	Alexis Cope, bursar........	Bal. fall term fees, of 1888......$217 75	
		Stall rent.......................... 2 00	219 75
		Winter term fees 1888-9:	
		Incidentals.......................$1,655 00	
		Chemical laboratory........... 175 50	
		Agr. Chem. " 64 00	
		Physiological " 80 00	
		Physical " 52 50	
		Pharmac'tic'l " 88 00	
		Mechanical " 65 00	
		Mining " 35 00	
		Botanical " 4 00	2,219 00
	Alexis Cope..................	Sale old iron..................................	6 50
	W. H. Scott..................	3d installment rent, '88-9........$38 50	
	C. A. Roth...........	Rent Nov., 1888...................... 10 00	
	B. F. Thomas	3d installment rent, '88-9........ 42 50	
	" "	4th " " " 42 50	
	D. S. Kellicott........	Rent of dwelling...................... 40 00	
	W. H. Scott..................	4th installment rent, '88-9....... 38 50	212 00
	W. C. McCracken..........	Sale of old paper............................	14 25
	J. C. Taylor..................	" " pump	30 00
	G. W. Knight...............	3d installment rent, '88-9 ....$37 50	
	"	Gas bill to 31st Dec., '88......... 12 00	
	D. S. Kellicott...............	Rent of dwelling...................... 40 00	
	"	Gas bill to 31st Dec., '88......... 10 00	
	W. R. Lazenby...............	Rec'pts floral dept. to Jan. 28, '89 15 20	
	W. H. Scott	5th installment rent, '88-9...... 38 50	
	"	Gas bill to 31st Dec., '89......... 18 00	
	C. A. Roth....................	Rent Dec. '88 and Jan. '89....... 20 00	191 20
	S. A. Norton	Chemicals sold, S. A. Norton	2 38
	Sam'l Kendrick.............	Am't rec'd on account of compromise Claim D. H. Mumma to discovery No. 5, Champaign Co....................	333 33
	Ohio State Treasury	On account of interest on endowm't fund, due 1st July, '89........	5,000 00

STATEMENT I—Continued.

Date.	Received from—	On account of—		Amount.
1889.				
April 13	D. S. Kellicott	Account of rent	$75 00	
	W. H. Scott	6th installment rent, '88–9	38 50	
	"	7th " "	38 50	
	G. W. Knight	4th " "	37 50	
	B. F. Thomas	5th " "	42 50	
				$232 00
•	W. R. Lazenby	Receipts floral dep't		2 30
	D. S. Kellicott	Account of rent	$40 00	
	B. F. Thomas	6th and 7th install's rent, '88-9	85 00	
	G. W. Knight	5th " "	37 50	
				162 50
	J. R. English	Note J. R. English	76 90	
	"	Int. " " (3 notes)	173 10	
				250 00
	Ohio State Treasury	On account of interest on endowm't fund, due 1st July, '89		3,000 00
May 31	D. S. Kellicott	Account of rent	$40 00	
	"	Gas bill to 31st March, '89	8 00	
	G. W. Knight	6th installment rent	37 50	
	"	Gas bill to 31st March, '89	12 40	
	N. S. Townshend	Rent year ending Apr. 30, '89	300 00	
	W. H. Scott	8th installment rent, '88–9	38 50	
	"	Gas bill to 31st March, '89	9 50	
	G. W. Knight	7th installment rent, '89.	37 50	
	B. F. Thomas.	8th and 9th " "	85 00	
	D. S. Kellicott	On account of rent	40 00	
				608 40
	Alexis Cope, Sec'y	J. R. English, notes, 3@$76.90	$230 70	
	"	" Int. on above	11 14	
				241 84
June 6	Alexis Cope, Bursar	Bal. winter term fees, '88–9:		
	"	Incidentals & mining lab	$12 00	12 00
	Alexis Cope, Bursar	Spring term fees, '88–9:		
		Incidentals	$1,515 00	
		Chemical laboratory	160 00	
		Agr. chem. "	32 00	
		Mechanical "	55 00	
		Physical "	63 00	
		Physiological "	45 00	
		Pharmac'tic'l "	88 00	
		Mining	21 00	
		Botanical	1 00	
				1,980 00
29	Ohio State Treasury	Balance interest on endowm't fund, due 1st July, 1889		5,135 24
August 26	Ohio State Treasury	On account of interest on endowm't fund, due 1st Jan'y, 1890		5,000 00
Oct. 25	Ohio State Treasury	On account of interest on endowm't fund, due 1st Jan., 1890		5,000 00
31	C. A. Roth	Rent, Feb., M'ch and April, '89	$30 00	
	D. S. Kellicott	Account of rent	40 00	
	G. W. Knight	8th and 9th inst'llm't rent, '88-9.	75 00	
	"	Gas bill to 1st July, '89	4 60	
	W. H. Scott	10th installment rent, '88–9	38 50	
				188 10
	W. R. Lazenby	Receipts floral dep't, Apr., May, June		18 65
	B. F. Thomas	10th installment rent, '88–9	$42 50	
	"	Gas bill to 31st March, '89	18 40	

STATEMENT I—Concluded.

Date.	Received from—	On account of—	Amount.
1889.			
Oct. 31	W. H. Scott	1st installment rent, '89–'90...... 38 50	
	D. S. Kellicott	" " 47 50	
	B. F. Thomas	" " 42 50	
	C. A. Roth	Rent, May and June, '89......... 20 00	
			209 40
	Brush & Brush	Old stones, chemical b'ld'g	120 00
	D. S. Kellicott	2d installment rent, '89–'90......$47 50	
	"	Gas bill to Oct. 1, 1889............ 8 10	
	B. F. Thomas	2d installment rent, '89–'90...... 42 50	
	"	Gas bill to Oct. 1, '89.............. 9 50	
	W. H. Scott	2d installment rent, '89–'90...... 38 50	
	"	Gas bill to Oct. 1, '89.............. 10 30	
	C. N. Brown	1st and 2d inst'llm't rent, '89-'90 75 00	
	"	Gas bill to Oct. 1, '89.............. 2 70	
	Andrew Haupt	Water rent, electrical b'ld'g..... 16 02	
			250 12
	Alexis Cope, Bursar.......	Term fees, fall term, '89..............	2,439 00
	Standard Oil Co	8 barrels coal tar..............................	10 00
	Ohio Paving Co	Coal tar..	20 27
	Junk dealers..................	Old iron sold	94 72
	A. Kilbourne..................	Old brass sold.................................	12 50
	A. Cope, sec'y	12 grantees, Va. mil. land act, March 14, '89..	24 00
13	W. R. Lazenby	Sale plants from June 27, to Nov. 9, '89..	5 25
			$53,972 31

STATEMENT II.

Detailed Statement of Disbursements by F. W. Prentiss, Treasurer, during Fiscal Year ending November 15, 1889.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888.				
Nov. 22	R. B. Smith	Stove—dormitory	1	$6 00
24	H. A. Weber	Salary November installment	2	225 00
	C. P. Sigerfoos	" " "	3	25 00
	G. W. Knight	" " "	4	225 00
	W. H. Scott	" " "	5	300 00
	J. N. Bradford	" " "	6	120 00
	J. A. Wilgus	" " "	7	40 00
	E. A. Eggers	" " "	8	180 00
28	Columbus post-office	Newspaper wrappers	9	1 12
Dec. 1	S. A. Norton	Salary November installment	10	225 00
	Edward Orton	" " "	11	225 00
	N. S. Townshend	" " "	12	225 00
	D. S. Kellicott	" " "	13	200 00
	S. W. Robinson	" " "	14	225 00
	S. C. Derby	" " "	15	225 00
	W. R. Lazenby	" " "	16	225 00
	J. R. Smith	" " "	17	225 00
	B. F. Thomas	" " "	18	225 00
	H. J. Detmers	" " "	19	120 00
	R. D. Bohannan	" " "	20	225 00
	C. E. Kilbourne	" " "	21	50 00
	C. N. Brown	" " "	22	200 00
	Alice K. Williams	" " "	23	120 00
	G. B. Kauffman	" " "	24	100 00
	A. H. Welsh	" " "	25	180 00
	Geo. W. McCoard	" " "	26	140 00
	J. T. Whitney	" " "	27	80 00
	Frederick Keffer	" " "	28	80 00
	Olive B. Jones	" " "	29	20 00
	C. W. Mesloh	Salary Sept., Oct. & Nov. install.	30	30 00
	Alexis Cope	Salary Nov. installment	31	166 66
	F. W. Prentiss	" "	32	29 17
4	Moore, Adams & Co.	Lumber for repairs.	33	153 55
	W. Townsend	26 days' services as janitor	34	39 00
5	Col. Picture Frame Co.	Hauling catalogues to centennial	35	1 00
6	W. A. Carr	74½ hrs. carpenter work	36	14 90
	J. C. Early	25¾ " "	37	5 15
	A. Eyler	11 " "	38	1 92
8	R. H. Hassler	72 hrs work mech'l dept	39	10 80
	Wm. Halley	Plumbing chem'l dept	40	35 15
	Earnest Evans	81 hrs. visitors' attendant	41	12 15
	M. A. Smith	Supplies battalion	42	4 55
9	Orville Gibson	28 hrs. w'k agr'l chem'l dept	43	4 20
11	C. P. Fox	16 " "	44	2 40
	H. H. Blount	79 hrs. work hort. building	45	11 85
	Thos. Meehan & Son	Trees, shrubs & vines exhibited at Ohio centennial	46	250 00
	W. H. Clark	30 hrs. work visitors' attendant	47	4 50
	F. W. Raum	Repairs cases, German dept	48	4 00
	Robt. Stevens	Drayage	49	1 00
	Kelton & Brown	Doors, etc., dormitory	50	2 25
	Park & Garber	Dynamite for blasting stumps	51	5 50
	Harrison Cole	Supplies dep't civil engineering	52	4 25
	G. H. Twiss	Supplies	53	9 50
	McGregor Bros	Plants for green house	54	9 58

STATEMENT II—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888. Dec. 11	J. C. Vaughan	Plants, etc., for green house	55	$9 52
	The Pratt Whitney Co	Supplies mech'l dept	56	4 01
	Brown & Sharp M'f'g Co	“ “	57	8 73
	The M. C. Lilley & Co	3 swords and belts	58	23 10
	Heintzleman & Taylor	Advertisement in Vigilant	59	2 00
	The Cent. Press Ass'n	Advertising	60	21 42
	The Westbote Company	“ dep'ts	61	25 00
	J. M. & W. Westwater	Gas fixtures for houses Va. M. L	62	214 50
	G. W. Twiss	Pap'g Dr. Kellicott's h'se, Va.M.L	63	20 16
	H. Braun Sons & Co	Supplies	64	1 10
	E. Barnhart & Co	“	65	2 00
	Aston & Huff	Repairing stoves, dormitory	66	52 83
	Cent. Ohio Paper Co	Supplies	67	35 00
	R. E. Jones	Two carriages	68	8 00
	Wells & Tracy	Supplies	69	10 50
	American Express Co	Freight on packages	70	8 45
	Wm. Halley	Repairs Dr. Scott's house	71	1 80
	Engelke & Bigelow	Drayage	72	5 00
	McClelland & Co	Supplies, Dr. Scott	73	3 50
	Geo. M. Maris & Co	Supplies	74	4 15
	Col. Brass & S. P. W'ks	Supplies and repairs	75	23 95
	Jas. W. Queen & Co	“ physical dept	76	125 25
	W. R. Lazenby	850 brick, mining dept	77	3 50
	R. W. Bock	Painting signs centennial	78	67 50
	Edward Orton	Drayage geol'cal ex. centennial	79	9 44
	J. C. Welton	Supplies for band	80	19 75
	G. W. Early	“ “	81	6 50
	Frank Prine	Lab., etc., eng. dept & Dr. Knight's	82	68 58
	Jas. Kelley	Services Aug., Sep., Oct., Nov., '88.	83	160 00
	A. W. Jackson & Sons	Binding entrance records	84	2 05
	W. U. Telegraph Co	Messages	85	1 00
	D. Y. Murdock	Adv't Ohio Conf. minutes	86	6 00
	O. Inst. Min'g Engin'ng	“ mining dept	87	15 00
	Quaker City Chair Co	4 doz. chairs	88	45 60
	F. Charles	Drayage to centennial	89	2 50
	Col. Brass & S. P. W'ks	Supplies, etc	90	12 20
12	Geo. M. Maris & Co	“ for repairs	91	4 45
	Col. Transfer Co	Freights and drayage	92	12 89
	W. S. Tidball	36 bu. of lime	93	6 64
	Seibert & Lilley	Blank books	94	12 15
18	Edward Orton	Salary Dec. installment	95	225 00
19	F. W. Jennings	Fees refunded order b'd of trustees	96	5 00
	Harry Holtz	“ “ “	97	5 00
	Theo. L. Griffin	“ “ “	98	10 00
	Grace H. Rose	“ “ “	99	5 00
	W. A. Walker	“ “ “	100	5 00
1889. Oct. 26	Michael Queal	Salary Oct., '89 installment	101	12 50
1888. Dec. 21	Sidney A. Norton	Salary Dec., '88 installment	102	225 00
	Alexis Cope	“ “ “	103	166 66
	F. W. Prentiss	“ “ “	104	33 33
22	W. H. Scott	“ “ “	105	300 00
	N. S. Townshend	“ “ “	106	225 00
	D. S. Kellicott	“ “ “	107	200 00
	S. W. Robinson	“ “ “	108	225 00
	S. C. Derby	“ “ “	109	225 00
	W. R. Lazenby	“ “ “	110	225 00

STATEMENT II.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1888.				
Dec. 22	J R. Smith	Salary, Dec. 1888 installment	111	$225 00
	H. A. Weber	" "	112	225 00
	B. F. Thomas	" "	113	225 00
	Geo. W. Knight	" "	114	225 00
	H. J. Detmers	" "	115	120 00
	R. D. Bohannan	" "	116	225 00
	C. E. Kilbourne	" "	117	50 00
	C. N. Brown	" "	118	200 00
	Alice K. Williams	" "	119	120 00
	E. A. Eggers	" "	120	180 00
	G. B. Kauffman	" "	121	100 00
	A. H. Welsh	" "	122	180 00
	G. W. McCoard	" "	123	140 00
	J. S. Bradford	" "	124	120 00
	J. T. Whitney	" "	125	80 00
	Fred. Keffer	" "	126	80 00
	J. A. Wilgus	" "	127	40 00
	C. P. Sigerfoos	" "	128	25 00
	C. W. Mesloh	" "	129	10 00
	Olive B. Jones	" "	130	20 00
	W. C. McCracken	" "	131	75 00
	E. C. Grove	" "	132	35 00
31	W. H. Holmes	" "	133	40 00
1889.				
Jan. 14	Columbus Post-office	2 thousand 2c postage stamps	134	40 00
18	Washington Townsend	Salary, Dec installment	135	37 50
	N. Patterson	Repairs, Dr. Knight's res. V.M.L.	136	6 50
19	W. Gladden	Discourse, Sunday P. M. series	137	20 00
	D. S. Kellicott	Supplies physiological dep't	138	29 06
	M. A. Smith	Care of arms, fall term, '88, etc.	139	8 30
	R. H. Hassler	17 hours work mechanical dep't	140	2 55
	C. E. Skinner	50 hrs. word mechanical dep't, etc	141	12 90
21	Wm. Halley	Repairing plumbing main buil'g	142	6 75
	W. A. Carr	8 days 9¼ hours carpenter work	143	17 85
22	H. H Blunt	117 hrs. cleaning, etc., hort'l b'l'dg	144	17 55
	C. P. Sigerfoos	Supplies, physiological dep't	145	3 40
	Andrew Dobbie	1 doz. towels, chemical dep't	146	2 25
	E. B. Armstrong	Gas stove, etc., chemical dep't	147	4 75
	Whitball, Tatum & Co	Supplies, chemical dep't	148	80 18
	W. G. Dunn & Co	" battalion	149	2 20
	C. Elec. Lt. & Power Co	50 gas dynamo oil, @ 50c	150	25 00
	J. H. Bunnell & Co	Repairs & supplies, phys'l dep't.	151	1 95
	Glock & Tallmadge	Supplies, "	152	1 15
	Ingham, Clark & Co	Map, geological museum	153	18 40
	Geo. F. Hill	Specimens, "	154	7 35
	Hildreth & Mar'n L. Co	Lumber, engineering dep't	155	26 95
	H. Braun, Sons & Co	Supplies	156	1 50
	Park & Irwin	Powder, etc., removing stumps	157	2 95
	Kauffman Lattimer Co	Supplies, dep't agri'l chemistry	158	285 50
	Aston & Huff	" dormitory	159	70
	H. O. Oster	26 hrs; repairs chem'l dep't	160	3 90
	W. R. Kinnear & Co	Repairs, main building	161	4 53
	Chas. Wheeler	Supplies, dormitory	162	8 50
	D. Spencer	Labor and materials, gen'l rep's	163	43 61
23	Blackwood, Green & Co	Sup's, engin' dep't & Dr. Towns'd	164	23 77
	Cl Brass & Steam P. Wks	Supplies and labor	165	33 51
	Geo. M. Maris & Co	" mechanical department	166	16 33
	C. Warm Air Furnace Co	Repairs, Dr. Thomas' res	167	21 57
	S. C. Derby	Exp. vis'g schools Mt. Sterling, etc	168	10 96

Statement II.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
Jan. 23	J. R. Smith............	Exp. vis'g schools McArthur, etc	169	$10 50
	G. W. Knight................	" " Lorain	170	9 95
	Nitschke Bros...............	Printing circulars, etc	171	7 75
	Ohio State Journal Co...	Adv't' vet. clinic.	172	12 46
	Gazette Printing Co.......	750 orders, chemical dep't.........	173	2 25
	Samuel Findlay............	Adv't. Educational Monthly......	174	7 50
	Hann & Adair.........	500 examination blanks............	175	3 30
	Siebert & Lilley............	Stationery................................	176	17 75
	Strobridge Lithograph Co	Commissions, etc., for battalion ..	177	20 00
	The Westbote Co............	Printing copies president's rep't.	178	10 50
	E. A. Eggers..........	Expressage, books for library.....	179	1 70
	Cent. Union Tel. Co........	Rent, qr. ending March 31, '89...	180	25 50
	U. S. Express Co............	Freight, box mining department	181	1 00
	W. U. Telegraph Co.......	Messages................................	182	35
	Coumbus Transfer Co	Freight and drayage.................	183	13 97
	Col. & H. Coal & Iron Co	On account, coal delivered........	184	757 76
26	W. H. Scott	Salary, January installment.....	185	300 00
	Edward Orton...............	" "	186	225 00
	S. A. Norton.................	" "	187	225 00
	N. S. Townshend...........	" "	188	225 00
	S. W. Robinson.............	" "	189	225 00
	S. C. Derby...................	" "	190	225 00
	W. R. Lazenby..............	" "	191	225 00
	J. R. Smith	" "	192	225 00
	H. A. Weber.........	" "	193	225 00
	B. F. Thomas................	" "	194	225 00
	G. W. Knight..............	" "	195	225 00
	H. J. Detmers..............	" "	196	120 00
	Chas. E. Kilbourne........	" "	197	50 00
	R D. Bohannan............	" "	198	225 00
	D. S. Kellicott...............	" "	199	200 00
	S. N. Brown	" "	200	200 00
	Alice K. Williams.........	" "	201	150 00
	E. A. Eggers.................	" "	202	180 00
	Geo. B. Kauffman..........	" "	203	100 00
	A. H. Welsh..........	" "	204	180 00
	Geo. W. McCoard..........	" "	205	140 00
	J. N. Bradford	" "	206	120 00
	J. T. Whitney	" "	207	80 00
	Fred'r Keffer	" "	208	80 00
	J. A. Wilgus..................	" "	209	40 00
	C. P. Sigerfoos............	" "	210	25 00
	Olive B. Jones..............	" "	211	20 00
	J. L. Hauer.........	Salary, Oct., Nov. & Dec. install't	212	50 00
	C. W. Mesloh.	" January installment......	213	10 00
29	W. H. Scott..................	Paid Dr. Bascom, Sunday lectu'e	214	50 00
31	Engelke & Bigelow........	Freight and drayage.................	215	5 50
	E. C. Grove	Salary, January installment......	216	35 00
	W. H. Holmes	" "	217	40 00
	W. C. McCraken............	" "	218	75 00
	Alexis Cope........	" "	219	166 66
	F. W. Prentiss..............	" "	220	33 33
Feb. 1	U. S. Express Co	Freight on package, library.......	221	50
5	W. Townsend	Salary, 26½ days, January, 1889..	222	39 75
6	Wm. Barr	1 horse dissection, vet. dep't......	223	5 00
16	H. A. Weber.................	Expenses attend'g Farmers' Ins't	224	18 70
	A. Eyler...	14½ cords wood	225	43 50
	H. H. Blunt..................	80 hrs. work, horticultural b'l'bg	226	12 00
23	W. H. Scott..................	Salary, February installment.....	227	300 00

STATEMENT II—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
Feb. 23	Ed. Orton...	Salary, February installment.....	228	$225 00
	S. A. Norton...	" "	229	225 00
	N. S. Townshend...	" "	230	225 00
	Jas. Clark...	Repairs, dormitory...	231	4 50
	J. N. Wilgus...	Salary, February installment.....	232	40 00
	C. P. Sigerfoos...	" "	233	25 00
	D. S. Kellicott...	" "	234	200 00
	J. N. Bradford...	" "	235	120 00
	S. W. Robinson...	" "	236	225 00
	H. A Weber...	" "	237	225 00
	W. H. Scott...	Paid for police b'dges, ex. ch., etc.	238	3 70
	S. P. Sprecher...	Lecture, university course...	239	27 50
	G. W. Knight...	Salary, February installment.....	240	225 00
	C. W. Mesloh...	" "	241	10 00
	J. R. Smith...	" "	242	225 00
	H. J. Detmers...	" "	243	120 00
	G. W McCoard...	" "	244	140 00
	Chas. E. Kilbourne...	" "	245	50 00
	B. F. Thomas...	" "	246	225 00
	E. A. Eggers...	" "	247	180 00
	S. C. Derby...	" "	248	225 00
	Fred. Kefler...	" "	249	80 00
	R. D. Bohannan...	" "	250	225 00
28	W. C. McCracken...	" "	251	75 00
	E. C. Grove...	" "	252	35 00
	W. H. Holmes...	" "	253	40 00
	F. W. Prentiss...	" "	254	33 33
	Alexis Cope...	" "	255	166 67
Mar. 3	J. T. Whitney...	" "	256	80 00
	W. R. Lazenby...	" "	257	225 00
	Olive B. Jones...	" "	258	20 00
	Alice K. Williams...	" "	259	150 00
	Hershiser & Snyder...	Lumber, mechan'l department...	260	11 55
4	Glock & Talmadge...	Supplies, "	261	4 05
	Aston & Huff...	Furnace grate, Dr. Scott's res.....	262	2 50
	F. K. Wood...	25 doz. window fasteners...	263	15 00
	Wells & Tracy...	Blacking and harness dressing...	264	1 90
	W. Omen...	10 gallons coal-oil...	265	1 00
	Chas. C. Gerry...	3 doz. crayon erasers...	266	4 80
	A. H. Smythe...	Stationery...	267	3 40
	A. of A. A. C. Ex. Stat..	Membership fee...	268	10 00
	Ohio Agr. & Ex. Station.	Labor, men and teams...	269	49 70
	Col. Br. & Ste. Pipe W'ks	Supplies...	270	61 36
	W. R. Lazenby...	Expenses attending Farmers' In.	271	28 00
	H. J. Detmers...	" " "	272	5 65
	Cen. Union Telephone Co.	Rent term, sig. line to 15 Feb. '89	273	25 00
	Webb & Groff...	Freight and drayage...	274	2 47
	Adam Express Co...	" " ...	275	1 55
	U. S. Express Co...	" " ...	276	3 15
	McClelland & Co...	Stationery, Dr. Scott...	277	1 76
	Columbus Dispatch...	Adv't Vet. clinic...	278	3 60
	S. B. Dudley...	Band rests...	279	3 75
	H. Braun, Sons & Co....	Supplies, vet'y dep't...	280	23 00
	T. S. & J. D. Negus...	Repairing, etc., chem. phy. dep't.	281	24 00
26	C. P. Wilcox...	Fees refunded order b'd of trus.	282	5 00
4	Geo. M. Maris & Co...	Supplies...	283	1 50
	W. R. Kinnear & Co.. ...	Repairs, Dr. Knight's res...	284	7 25
	A. H. Welsh...	Salary, February installment.....	285	180 00
7	W. Townsend...	" 24 days, February, '89....	286	36 00

STATEMENT II—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
Mar. 7	Geo. B. Kauffman	Salary, February installment	287	$100 00
15	Whitall, Tatum & Co	Supplies, chemical department	288	7 45
	H. Braun, Sons & Co	“ vet. dep't	289	1 60
	Bausch & Lomb Opt. Co.	“ phy. dep't	290	25 88
	H. Braun, Sons & Co	“ physio. dep't	291	8 55
	C. P. Sigerfoos	“ “	292	11 00
	D. S. Kellicott	“ “	293	7 85
	Samuel Lerch	“ vet. dep't	294	5 00
	Samuel Winegardner	“ “	295	2 50
	Kilbourne, Jones & Co	“ “	296	1 75
	“ “	“ mech'l dep't	297	19 14
	R. H. Hassler	34 hours' work, mech'l dep't	298	5 10
	Annie N. Scott	25 “ geol'l dep't	299	6 25
	Borger Bros. & Co	Repairing boilers	300	207 82
	Aston & Huff	Repairing stoves, dormitory	301	4 10
	Blackwood, Green & Co	Repairs Prof. Townshend's res	302	10 30
	Columbus Transfer Co	Freight and drayage	303	9 48
	Col. Br. & St'm Pipe Wks	Pipe and fittings	304	4 79
	R. S. Goodle	18½ hours' work, chem'l dep't	305	3 24
	E. K. Coulter	30 “ “	306	5 25
	A. H. Kennedy	42 “ “	307	7 35
	C. & H. Coal & Iron Co	On account coal delivered	308	542 60
	Col. Br. & St'm Pipe Wks.	Pipe and fittings	309	8 29
	N. S. Townshend	Ex. attending Knoxville conven.	310	32 70
	“	“ Farmers' Institute.	311	9 85
	Brodix Publishing Co	U. S. official postal guide	312	1 50
	Siebert & Lilley	3 thousand envelopes	313	20 25
	Col. Con. St. R. R. Co	6 extra cars	314	24 00
	W. R. Lazenby	Ex. attending Farmers' Institute	315	19 65
	Samuel Findlay	Advertising	316	7 50
	H. H. Blunt	Work pharm'l and bot'l dep'ts	317	15 60
	Moore, Adams & Co	Flooring blackboards, etc	318	7 28
	Kelley & Co	Connect'g and disconnect'g meter	319	9 90
	W. U. Telegraph Co	Messages	320	1 27
	Siebert & Lilley	Company & “Battalion Reports”	321	39 00
	N. Patterson	One night as watchman	322	1 50
	Zan C. Payne	Acknowl'm't of deeds, V. M. L	323	2 40
	Palace Livery C. & T. Co	Carriages, etc., university day	324	15 00
	W. S. Tidball	83 measures lime	325	7 47
	W. H. Scott	Paid G. Anderson, preaching	326	22 00
	U. S. Express Co	Expressage	327	1 85
	Columbus Transfer Co	Freight and drayage	328	14 38
	Nitschke Bros	600 programmes	329	4 25
26	C. N. Brown	Salary, February installment	330	200 00
29	T. B. Hunt	Tearing down walls lab. b'ld'g	331	5 50
	S. A. Norton	Salary, March installment	332	225 00
30	W. H. Scott	“ “	333	300 00
	Ed. Orton	“ “	334	225 00
	N. S. Townshend	“ “	335	225 00
	S. C. Robinson	“ “	336	225 00
	S. C. Derby	“ “	337	225 00
	W. R. Lazenby	“ “	338	225 00
	J. R. Smith	“ “	339	225 00
	H. A. Weber	“ “	340	225 00
	B. F. Thomas	“ “	341	225 00
	G. W. Knight	“ “	342	225 00
	H. J. Detmers	“ “	343	120 00
	Chas. E. Kilbourne	“ “	344	50 00

STATEMENT II—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
Mar. 30	R. D. Bohannan	Salary, March installment	345	$225 00
	D. S. Kellicott	" "	346	200 00
	A. H. Welsh	" "	347	180 00
	C. N. Brown	" "	348	200 00
	E. A. Eggers	" "	349	180 00
	Alice K. Williams	" "	350	150 00
	G. B. Kauffman	" "	351	100 00
	G. W. McCoard	" "	352	140 00
	W. H. Scott	Paid L. H. Vincent, Sunday lect'e	353	20 00
	J. N. Bradford	Salary, March installment	354	120 00
	J. T. Whitney	" "	355	80 00
	Fred. Keffer	" "	356	80 00
	J. A. Wilgus	" "	357	40 00
	C. P. Sigerfoos	" "	358	25 00
	Olive B. Jones	" "	359	20 00
	J. L. Haner	" "	360	12 50
	W. C. McCracken	" "	361	75 00
	E. C. Grove	" "	362	35 00
	C. W. Mesloh	" "	363	10 00
	W. H. Holmes	" "	364	40 00
April 2	A. H. Kennedy	66 hrs. chemical dep't	365	11 55
	R. S. Goodell	34 hrs. work chemical dep't	366	5 95
	E. R. Coulter	41 hrs. " "	367	7 17
	F. W. Prentiss	Salary, March installment	368	33 33
	Alexis Cope	" "	369	166 66
	Washington Townsend	" "	370	39 00
10	E. E. Robinson	15 days digging pipe Chem. Dept	371	22 50
14	Thos. B. Hunt	Work tear'g down walls Chem. Dp	372	175 00
17	International Pub. Co	Columbus Illustrated	373	8 25
19	Wells & Tracy	1½ doz. brooms	374	4 00
	J. W. Queen & Co	Supplies physical dep't	375	105 90
	R. E. Jones	1 carriage for trustees	376	3 00
20	Brush Electric Co	Supplies physical dep't	377	24 00
	J. W. Queen & Co	" dep't civil engineering.	378	247 81
22	Thos. B. Hunt	Work tear'g down walls Chem. Dp	379	100 00
23	W. F. Lavery	Service ren'd veterinary dep't	380	100 00
24	D. S Kellicott	Supplies physical dep't	381	9 10
26	W. H. Carr	2½ hrs. physical dep't	382	5 62
27	C. P. Sigerfoos	Supplies physical dep't	383	8 19
	Sidney A. Norton	" chemical "	384	8 40
	H. H. Blunt	107 hrs. horticultural dep't, etc.	385	16 05
29	Thos. B. Hunt	Work tear'g down walls Chem. Dp	386	125 00
May 1	Geo. W. Knight	Exp. examen'g school, Richwood	387	5 35
	E. Howard Watch & Clk Co	1 No. 89 Regulator, special	388	120 00
	H. Braun, Sons & Co	Supplies veterinary dep't	389	1 10
	A. Eylar	Leading band, music, etc	390	7 00
	The Cent. Ohio Paper Co	100,000 sheets paper	391	35 00
	Cols. Humane Society	Horses dissection, veterin'y dep't	392	10 00
	The U. S. Express Co	Freight on supplies	393	95
	Adams Express Co	" "	394	13 65
	Cent. Un. Tel. Co	Rent instrument to June 30, 1889	395	25 00
	W. U. Telegraph Co	Messages	396	54
	Hann & Adair	1,000 class cards	397	3 50
	Kauffman-Lattimer Co	Supplies chemical dep't	398	14 36
	Krauss & Meehan	" "	399	2 59
	Gazette Printing Co	250 chemistry questions	400	2 25
	G. M. Maris & Co	Supplies bot. and vet'n dept	401	8 50
2	W. H. Scott	Paid N. K. Davis, Sunday lecture	402	65 70

STATEMENT II—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
May 16	W. H. Scott	Paid Bishop Newman, Sunday lec	403	$60 00
17	W. F. Lavery	Services rend'd vet. dept., April	404	33 33
22	E. E. Court	Models Geol. dept	405	160 00
	G. E. Stechert	Supplies dept. Latin	406	6 38
	W. R. Postal	I horse dissecting, vet'y dep't	407	3 00
	The M. C. Lilley & Co	Supplies battalion	408	9 00
	Chas. O. Tracy	" "	409	3 54
	M. A. Smith	Care arms and equipments	410	5 00
	Kauffman-Lattimer Co	Supplies pharmacy dep't	411	4 75
	R. H. Hassler	64 hrs. work mechanical dep't	412	9 60
	Schroth & Potter	Supplies physical dep't	413	10 00
	Hann & Adair	Stationery	414	7 10
	Gazette Printing Co.	Stationery, chemical dep't	415	7 00
	Nitschke Bros	Printing programmes	416	14 00
	Samuel Finlay	Adv't Ed. Monthly	417	7 50
	W. S. Tidball	60 M. lime	418	5 40
	Chas. Wheeler	Cleaning, etc., cistern, dormitory	419	9 00
	G. M. Maris & Co	6 keys	420	95
	Cols. Transfer Co	Freight and drayage	421	8 03
	American Express Co	Expressage	422	7 20
	W. U. Telegraph Co	Messages	423	25
	Cols. Water-Works	Water rent to May 1, 1889	424	118 28
	Cols. Post-office	500 1c postage	425	5 00
June 5	E. A. Eggers	Salary, June installment	426	180 00
8	H. H. Blunt	125½ hrs. Bot., Agrl, pharm. dep'ts	427	18 82
10	Cols. Post-office	4,000 1c stamps	428	40 00
11	C. M. Weed	Course lectures	429	50 00
12	C. E. Kilbourne	Salary, June installment	430	50 00
18	J. T. Whitney	" "	431	80 00
20	W. H. Scott	" "	432	300 00
	S. A. Norton	" "	433	225 00
	N. S. Townshend	" "	434	225 00
	S. W. Robinson	" "	435	225 00
	N. W. Lord	" "	436	200 00
	S. C. Derby	" "	437	225 00
	W. R. Lazenby	" "	438	225 00
	J. R. Smith	" "	439	225 00
	H. A. Weber	" "	440	225 00
	B. F. Thomas	" "	441	225 00
	G. W. Knight	" "	442	225 00
	H. J. Detmers	" "	443	120 00
	R. D. Bohannan	" "	444	225 00
	D. S. Kellicott	" "	445	200 00
	C. N. Brown	" "	446	200 00
	Alice K. Williams	" "	447	150 00
	Geo. B. Kauffman	" "	448	100 00
	A. H. Welsh	" "	449	180 00
	Geo. W. McCoard	" "	450	140 00
	F. W. Sperr	" "	451	120 00
	J. N. Bradford	" "	452	120 00
	J. A. Wilgus	" "	453	40 00
	C. P. Sigerfoos	" "	454	25 00
	Olive B. Jones	" "	455	20 00
	J. L. Haner	" "	456	12 50
	C. W. Mesloh	" "	457	10 00
	Fred. Keffer	" "	458	80 00
	Alice K. Williams	Balance due on salary	459	120 00

STATEMENT II—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
June 20	J. N. Horne	Music commencement	460	$35 00
	A. W. Jones	Saddles Decoration Day	461	1 25
21	E. E. Robinson	7 days cleaning boilers	462	10 50
	R. D. Bohannan	Paid J. G. Schurman (address)	463	50 00
	D. S. Kellicott	Supplies physiological dep't	464	25 08
	W. F. Lavery	Teaching veterinary anatomy	465	66 66
	A. Eylar	Services rendered leader band	466	6 00
	Julius Floto	Adv't Makio	467	15 00
	H. H. Blunt	160 hrs. work hort'l bld'g	468	24 00
	J. L. Haner	Salary, Feb. and Apr. installm'ts	469	25 00
	The Schwartz Plumb'g Co.	Supplies mechanical department.	470	4 50
	Wm. L. Bloomer	Plate of laboratory	471	8 00
June 23	Geo. M. Maris & Co	Supplies	472	1 25
	“ “	“ horticultural departm't.	473	2 60
	Charles O. Tracy	½ doz. dusters	474	3 00
	Hann & Adair	Stationery	475	7 30
	Potts & McCoy	Supplies hose, etc	476	6 70
	Gazette Printing Co	Circulars, etc	477	117 75
	Hann & Adair	25 copies 4-p. circulars V. M. L.	478	3 75
	Lantern Publishing Co	Advertising	479	30 00
	McClure Bros	19 steps, etc.	480	7 50
	S. W. Robinson	21 hrs. wk., R. H. Hassler, Me. Dt.	481	3 15
	Jas. Kelley	Services rend'rd Dec., Jan. & Feb.	482	105 00
	Enquirer Co	Advertising	483	7 50
	W. U. Telegraph Co	Messages	484	1 15
	The Toledo Bee Co	Advertising	485	6 75
	C. H. Hanawalt	483 loads of dirt	486	24 15
	G. H. Twiss	Stationery	487	1 25
	Commercial Gazette Co	Advertising	488	8 25
	The Columbus Record	“	489	10 40
	Strobridge Lith. Co	Warrants and diplomas	490	35 25
	C. T. Pfaff & Co	1 gas lantern	491	6 00
	J. W. Sturtevant	Advertising	492	2 75
July 1	Alexis Cope	Salary, June installment	493	166 67
	F. W. Prentiss	“	494	33 33
13	W. A. Carr	Erecting and removing stage	495	5 96
	Potts & McCoy	Supplies	496	16 70
	The Hayd'nv'le M.&M.Co	1 ton Bloss. coal, mechanical d't.	497	4 50
	The Post Print'g & P. Co	Advertising	498	9 00
	Leader Printing Co	“	499	14 40
	The Central Press Ass'n	“	500	4 00
	The Plain Dealer Pub. Co	“	501	9 40
	The Columbus Dispatch	“	502	9 25
15	The O. State Journal Co	“	503	14 90
	Hann & Adair		504	26 87
	The Strobridge Lith. Co	6 diplomas	505	7 50
	A. H. Smythe	Stationery	506	2 40
	The U. S. Express Co	Expressages and charges	507	3 90
	Cent'l Union Teleph'e Co	Rent instrum't to Sept. 30, '89, etc.	508	25 60
	W. U. Telephone Co	Messages	509	65
19	The J. W. Dann M'f'g Co.	Camp chairs commencement	510	24 83
	Pender & Co	Lumber platform commencement	511	4 00
	H. H. Blunt	5½ days' labor chemical departm't	512	8 25
	Pender & Coe	Lumber, physiological “	513	8 24
	W. A. Carr	5 d. m'k'g shelv'g physiologic'l dt.	514	11 70
	Jas. W. Queen & Co	Supplies, physiological departm't	515	187 50
27	Alexis Cope	Salary, July installment	516	166 67
	F. W. Prentiss	“ “	517	33 33
Aug. 10	E. Imhauser	1 watchman's clock	518	67 50

STATEMENT II—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
Aug. 10	Hann & Adair	Printing, etc	519	$2 25
	G. M. Maris & Co	Hardware, mechanical dep't	520	2 85
	Richwood & Backus Co	4 doz. Chute's class register	521	17 28
	Gustave E. Stechert	Maps, dep't Greek and Latin	522	15 07
	The Toledo Bee Co	Advertising proposals	523	7 50
	Enquirer Co	“	524	9 00
	Leader Printing Co	“	525	8 13
14	Toledo Commercial	“	526	6 00
	Commercial Gazette Co	“	527	6 75
	The O. State Journal Co	“	528	12 93
	Plain Dealer Pub. Co	“	529	9 90
	R. L. Polk & Co	Columbus City Directory	530	4 00
	McClelland & Co	Letter file and index	531	1 45
	Hann & Adair	100 deeds V. M. Lands	532	4 25
	Geo. M. Maris & Co	1 grind stone	533	2 50
	C. O. Tracy & Co	2 boxes soap	534	5 90
	The Century Co	Advertising	535	7 50
	Col's Electric Supply Co	Electric bell, Dr. Scott's house	536	5 00
15	Cherrington & Robinson	Autograph stamp, Dr. Scott	537	4 50
	W. U. Telegraph Co	Message	538	3 81
24	H. H. Blunt	40 hrs. cleaning hort. building	539	6 00
26	H. Braun, Sons & Co	Oils	540	5 50
	Andrew Dobbie	43½ yds. ribbons for diplomas	541	7 90
	Chas. O. Tracy & Co	Brooms, brushes, etc	542	15 25
	Hann & Adair	Cards and circulars	543	8 95
	Enquirer Co	Advertising	544	35 00
	Commercial Gazette Co	“	545	26 52
Sept. 5	W. Townsend	17 days' cleaning building	546	25 50
6	Julia Haines	17 “ “	547	17 00
	Madge Forquer	17 “ “	548	17 00
	Mary Stack	17 “ “	549	17 00
7	A. H. Kennedy	11½ days' cleaning woods	550	17 25
	W. A. Carr	Supplies, department drawing	551	28 87
	Madison Jackson	7½ days' cleaning buildings	552	11 25
	Anna Doyle	17 “ “	553	17 00
12	E. K. Coutler	11½ days chopping wood, etc	554	17 25
21	Columbus Post-office'	500 1c. stamps	555	15 00
	Hann & Adair	Stationery, etc	556	43 75
	R. W. Bock	Sign	557	75
	Pender & Coe	Lumber physiological departm't.	558	9 52
	G. M. Maris & Co	Hardware “	559	4 27
26	Olive B. Jones	Salary, Oct. installment	560	30 00
	B. F. Eberhart	Advertising	561	3 00
	The Century Co	“	562	15 00
	The Post Printing & P. Co	“	563	17 00
	Cherrington & Robinson	Stamp	564	1 50
	The Kauffmam L. Co	Supplies chemical department	565	146 69
	“ “	General supplies	566	2 01
	“ “	Supplies, department pharmacy	567	59 14
	“ “	“ “	568	23 84
	Moses Craig	320 hrs. work botanical dep't	569	64 00
	U. S. Express Co	Expressage	570	1 75
	Emma Scott	74 hrs. clerical work	571	11 10
	A. W. Jackson & Son'	Stationery	572	18 25
	W. U. Telegraph Co	Messages	573	4 75
	A. W. Jackson & Son	Sundry reports, etc.	574	10 50
	W. H. Scott	Salary, Sept. installment	575	300 00
27	G. W. McCoard	“ “	576	140 00
	H. J. Detmers	“ “	577	120 00

STATEMENT II.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
Sept .27	J. T. Whitney	Salary, Sept. installment...........	578	$80 00
	F. W. Sperr....................	“ “	579	140 00
8	J. N. Bradford..............	“ “	580	140 00
	S. A. Norton...................	“ “	581	225 00
	N. S. Townshend.........	“ “	582	225 00
	S. W. Robinson.............	“ “	583	225 00
	N. W. Lord......	“ “	584	200 00
	S. C. Derby.......	“ “	585	225 00
	W. R. Lazenby..............	“ “	586	225 00
	J. R. Smith	“ “	587	225 00
	H. A. Weber..................	“ “	588	225 00
	D. S. Kellicott	“ “	589	225 00
	E. A. Eggers..................	“ “	590	180 00
	Chas. E. Kilbourne........	“ “	591	50 00
	C. W. Mesloh................	“ “	592	40 00
	B. F. Thomas.................	“ “	593	225 00
	Olive B. Jones...............	“ “	594	30 00
	R. D. Bohannan	“ “	595	225 00
	Fred. Kefler...................	“ “	596	80 00
	Jno. W. Queen	“ “	597	180 00
	B. L. Bowen..................	“ “	598	150 00
	Jas. Chalmers	“ “	599	180 00
	Geo. B. Kauffman.........	“ “	600	100 00
	Alexis Cope...................	“ “	601	166 67
30	F. W. Prentiss	“ “	602	33 33
Oct. 2	Kauffman, Lattimer & Co	Supplies, chem'l dep't......	603	2 25
5	Frank A. Cope..............	4 da. adv't O. S. U. at State Fair	604	5 00
	Percy Martin	“ “ “ “	605	5 00
	The Educational Sun.....	Adv't of university..................	606	1 00
	Hann & Adair................	50 programmes..	607	19 25
	M. N. Smith...................	Caring for arms, spring term, '89	608	5 00
	Pearl Street Pr't'g House	One copy Columbus Directory...	609	4 00
	W. J. Johnston Co.........	Advertising............................	610	15 00
	Siebert & Lilley..	Receipt book..........................	611	9 00
	C. N. Helvin.................	Supplies, physio'l dep't............	612	25 70
	Cherrington & Robinson.	Rubber stamp..	613	3 50
	L. E. Mathews.	Blackboards........................	614	12 20
	The O. State Journal Co	Advertising...........	615	8 40
26	C. W. Mesloh................	Salary, Oct. installment............	616	40 00
	W. F. Lavery..	“ “	617	20 00
	J. N. Wilgus................	“ “	618	50 00
	C. P. Sigerfoos..............	“ “	619	70 00
	Fred. Kefler..................	“ “	620	80 00
	Jos. T Whitney	“ “	621	80 00
	J. N Bradford.	“ “	622	140 00
	F. W. Sperr..................	“ “	623	140 00
	G. W. McCoard.............	“ “	624	140 00
	J. W. Queen................	“ “	625	180 00
	Jas. Chalmers	“ “	626	180 00
	Geo. B. Kauffman.........	“ “	627	100 00
	E. A. Eggers.................	“ “	628	180 00
	B. L. Bowen	“ “	629	150 00
	C. N. Brown..................	“ “	630	200 00
	D. S. Kellicott..............	“ “	631	225 00
	R. D. Bohannan............	“ “	632	225 00
	Chas. E. Kilbourne........	“ “	633	50 00
	H. J. Detmers...............	“ “	634	120 00
	B. F. Thomas...............	“ “	635	225 00
	H. A. Weber.................	“ “	636	225 00

STATEMENT II.—Continued.

Date.	To whom paid.	For what purpose.	No.	Amount.
1889.				
Oct. 26	J. R. Smith	Salary, Oct. installment	637	$225 00
	W. R. Lazenby	“ “	638	225 00
	S. C. Derby	“ “	639	225 00
	N. W. Lord	“ “	640	200 00
	S. W. Robinson	“ “	641	225 00
	N. S. Townshend	“ “	642	225 00
	S A. Norton	“ “	643	225 00
	Edward Orton	“ “	644	225 00
	W. H. Scott	“ “	645	300 00
31	F. W. Prentiss	“ “	646	33 33
	Alexis Cope	“ “	647	166 67
	W. Townsend	“ “	648	40 50
30	Geo. Blackburn	Drayage	649	5 00
31	Col. & Cin. Mid. R. R. Co	Freight	650	13 13
Nov. 2	Edward Orton	Paid for supplies	651	14 60
	A. D. Haines	Salary, Sept. and Oct installm'ts	652	120 00
	Frankenburg Bros	Supplies, geo'l dep't	653	2 25
	Potts & McCoy	Special steam guage	654	6 75
	J. N Bradford	Supplies, dep't of drawing	655	9 00
	D. S. Kellicott	“ physio'l dep't	656	17 53
	Smith & Conklin	6 tables “	657	12 00
	H. Braun, Sons & Co	Supplies, “	658	21 70
	C. P. Sigerfoos	“ “	659	8 10
	Franklin Rubber Co	“ phys. dep't	660	5 43
	Becker Bros	“ “	661	93 75
	Shilling Foundry Co	401 lbs. small cast'gs, mech. dep't	662	16 04
	Glock & Tallmadge	Supplies, mech'l dep't	663	9 09
	Col. Brass & St'm-P. Wks	Fittings for repairs	664	4 14
	Quaker City Chair Co	6 doz. chairs	665	68 40
	Cent. Union Tel. Co	Rent tel. and mess. to 12-31, '89	666	25 10
	U. S. Express Co	Expressage	667	2 55
	Zeno C. Payne	3 acknowledgments	668	1 20
	W. Townsend	Cleaning carpet	669	3 30
	H. C. Laughlin	Visitors' attendant (State Fair)	670	9 00
	M. A. Stilling	10 gal. coal oil	671	1 00
	C. B. Chandler	3 da. 4½ hrs. making gun boxes	672	7 76
	David Ritchie	3½ days “ “	673	7 31
	W. S. Tidball	60 m. lime	674	5 40
	Lord & Thomas	Advertising	675	354 30
	Electrical Engineer	“	676	10 00
	The Post Print'g & P. Co	“	677	3 00
	The O. S. Journal Co	“	678	6 60
	Columbus Dispatch	“	679	36 50
	Home College & C	“	680	5 00
	Electrician Pub. Co	“	681	15 00
	Hann & Adair	Stationery and printing	682	3 90
	Siebert & Lilley	Blank book, etc	683	11 50
	Total			$48,947 53
	By balance			5,024 78
				$53,972 31

STATEMENT III.

A LIST OF EMPLOYES AND COMPENSATION.

In compliance with section 7 of the organic act passed by the legislature of Ohio May 1, 1878, which requires a list of "the number of professors, officers, teachers and other employes, and the position and compensation of each, to be reported annually,' the following is submitted:

W. H. Scott,	President and Professor of Philosophy	$3,000 00
Edward Orton,	Professor of Geology	2,250 00
Sidney A. Norton,	" General Chemistry	2,250 00
Norton S. Townshend,	" Agriculture	2,250 00
David S. Kellicott,	" Zoology and Comp. Anatomy	2,250 00
Stillman W. Robinson,	" Mechanical Engineering	2,250 00
Nathaniel W. Lord,	" Mining and Metallurgy	2,000 00
Samuel C. Derby,	" Latin	2,250 00
William R. Lazenby,	" Horticulture and Botany	2,250 00
Josiah R. Smith,	" Greek	2,250 00
Henry A. Weber,	" Agricultural Chemistry	2,250 00
Benjamin F. Thomas,	" Physics	2,250 00
R. D. Bohannan,	" Mathematics and Anatomy	2,250 00
John W. Queen,	" History and Political Science	1,800 00
Charles E. Kilbourne,	" Military Science and Tactics	500 00
H. J. Detmers,	" Veterinary Surgery	1,200 00
C. Newton Brown,	" Civil Engineering	2,000 00
Benjamin L. Bowen,	Asso. Prof. French Language and Literature	1,500 00
Ernest A. Eggers,	" German " "	1,800 00
James Chalmers,	" English " "	1,800 00
George B. Kauffman,	" Pharmacy	1,000 00
George W. McCoard,	Assistant Professor Mathematics	1,400 00
Joseph T. Whitney,	Assistant in Physics	1,000 00
Joseph N. Bradford,	" Drawing	1,400 00
James A. Wilgus,	" Latin and History	500 00
Charles P. Sigerfoos,	" Zoology and Comp. Anatomy	700 00
Charles W. Mesloh,	" German	400 00
A. D. Haines,	" Mechanical Engineering	600 00
William F. Livery,	" Veterinary	200 00
Joseph R. Taylor,	" Drawing	200 00
Frederic Keffer,	" Chemistry	800 00
Olive B. Jones,	Assistant Librarian	300 00
Michael Queal,	President's Clerk	125 00
W. C. McCracken,	Engineer	900 00
C. A. Roth,	Florist	600 00
Edward C. Grove,	Fireman	480 00
William H. Holmes,	Night Watchman	480 00
Alexis Cope,	Secretary	2,000 00
F. W. Prentiss,	Treasurer	400 00
Total		$53,835 00

NOVEMBER 20, 1889.

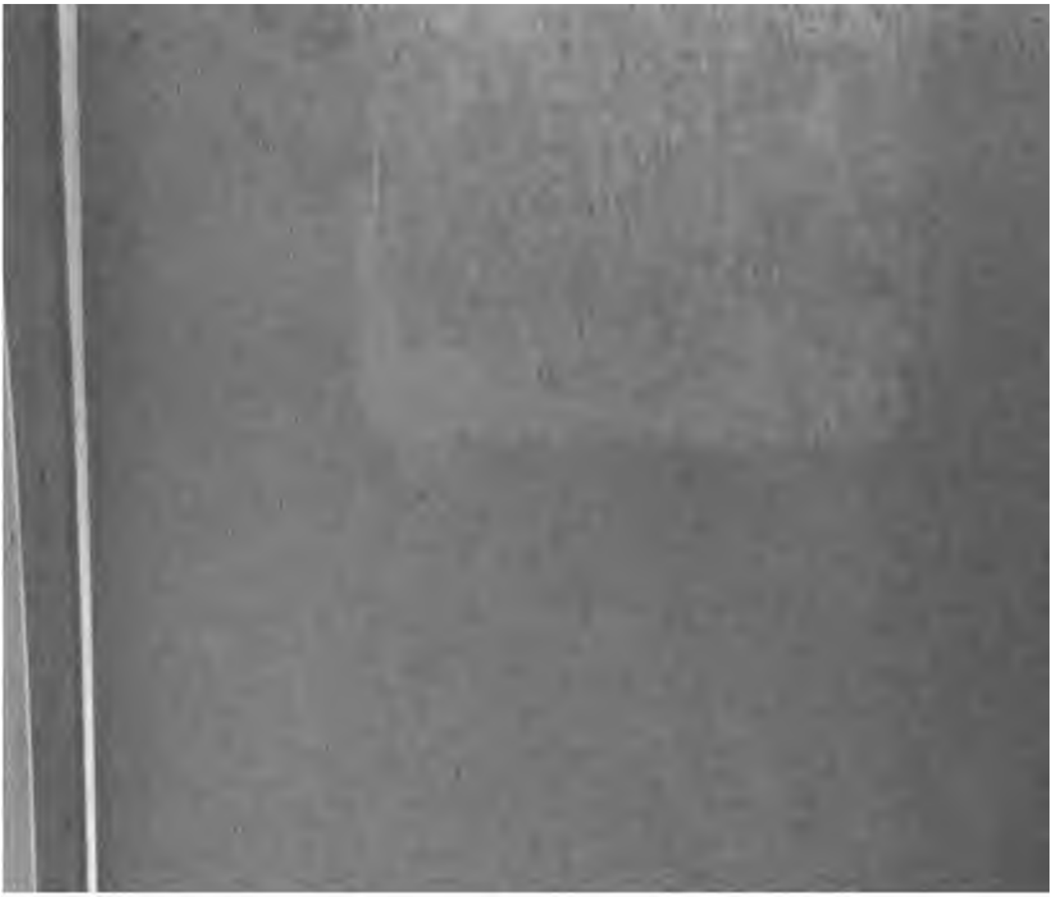
To the Board of Trustees of the Ohio State University:

We, the undersigned, your finance committee, have, in obedience to your instructions, examined the accounts and vouchers of the treasurer of the university for the fiscal year ending November 15, 1889, and carefully compared them with the records and vouchers in possession of the secretary, and hereby certify that the report of the treasurer, submitted to the board for the last fiscal year, is correct.

Respectfully submitted.

T. J. GODFREY,
D. M. MASSIE,
Finance Committee.

181535



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